Royal DSM Integrated Annual Report 2021

Creating brighter lives for all

NUTRITION • HEALTH • BIOSCIENCE

DSM

BRIGHT SCIENCE. BRIGHTER LIVING.

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Forward-looking statements

This document may contain forward-looking statements with respect to DSM's future performance and position. Such statements are based on current expectations, estimates and projections by DSM and information currently available to the company. Examples of forward-looking statements include statements made or implied about the company's strategy, estimates of sales growth, financial results, cost savings and future developments in its existing businesses as well as the impact of future acquisitions, and the company's financial position. These statements can be management estimates based on information provided by specialized agencies or advisors.

DSM cautions readers that such statements involve certain risks and uncertainties that are difficult to predict and therefore it should be understood that many factors can cause the company's actual performance and position to differ materially from these statements. These factors include, but are not limited to, macro-economic, market and business trends and conditions, competition, legal claims, the company's ability to protect intellectual property, changes in legislation, changes in exchange and interest rates, changes in tax rates, pension costs, raw material and energy prices, employee costs, the implementation of the company's strategy, the company's ability to identify and complete acquisitions and to successfully integrate acquired companies, the company's ability to realize planned divestments, savings, restructuring or benefits, the company's ability to identify, develop and successfully commercialize new products, markets or technologies, economic and/or political changes and other developments in countries and markets in which DSM operates. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the 'Risk Management' section.

As a result, DSM's actual future performance, position and/or financial results may differ materially from the plans, goals and expectations set forth in such forward-looking statements. DSM has no obligation to update the statements contained in this document, unless required by law. The English-language version of this document is leading.

Key data

Key data[1]

	2021	2020
People		
Workforce at 31 December (headcount)	21,358	23,127
Female:male ratio[2]	30:70	29:71
Total employee benefit costs (in € million)	1,810	1,848
Frequency Index of Recordable Injuries (per 100 DSM employees and contractor employees)	0.22	0.24
Employee Engagement Index (in %)	76	76
Planet		
Primary energy use (in PJ)	21.4	21.5
Energy Efficiency Improvement (in %, year-on-year)	6.0	5.7
Greenhouse gas emissions, market-based (scope 1 + 2, in CO_2 equivalents, x million tons)	1.2	1.2
Greenhouse gas scope 1 + 2 cumulative absolute reduction (in %, baseline 2016)	27	25
Water withdrawal for non-once-through-cooling (x million m^3)	26	24
Brighter Living Solutions (as % of running business)	64	63
Profit (in € million)		
Net sales from continuing operations	9,204	8,106
Adjusted EBITDA from continuing operations[3]	1,814	1,534
EBITDA from continuing operations	1,702	1,368
Adjusted operating profit from continuing operations (EBIT)[3]	1,139	929
Operating profit from continuing operations (EBIT)	1,021	662
Net profit for the year	1,680	508
Adjusted net operating free cash flow from continuing operations[3]	949	872
Capital expenditure, cash based	570	585
Dividend for DSM shareholders (based on profit appropriation)	438[4]	420
Net debt	1,014	2,577
Shareholders' equity	9,318	7,399
Total assets	16,013	14,346
Capital employed	11,012	10,557
Market capitalization at 31 December[5]	34,608	25,545
Per ordinary share in €		
Net earnings	9.68	2.91
Dividend	2.50[4]	2.40
Financial ratios (%)		
Sales to high-growth economies / net sales (continuing operations)	46	44
Innovation sales / net sales (continuing operations)	19	21
Adjusted EBITDA margin (continuing operations)[3]	19.7	18.9
Average working capital / annualized net sales (continuing operations)	20.2	22.3
ROCE (continuing operations)[3]	11.1	10.4
Gearing (net debt / equity plus net debt)	9.7	25.6
Equity / total assets	58.7	52.2
Cash provided by operating activities / Adjusted EBITDA[3]	77.5	90.5

1 For definitions, see Explanation of some concepts and ratios.

2 For the indexes based on age, nationalities, gender, inflow and outflow, the companies that are not integrated into the HR systems (approx. 6% of the total workforce) are not taken into account.

3 In presenting and discussing DSM's financial position, operating results and cash flows, DSM (like many other publicly listed companies) uses certain Alternative performance measures (APMs) not defined by IFRS and referred to as 'Adjusted'. These APMs are used because they are an important measure of DSM's business development and DSM's management performance. A full reconciliation of IFRS performance measures to the APMs is given in Note 2 of the Consolidated financial statements.

4 Subject to approval by the Annual General Meeting of Shareholders.

5 Source: Bloomberg.

Co-CEO letter

Dear reader,

If 2020 had been an eventful year for us all worldwide, the level of challenge remained unchanged in 2021. At DSM, we dealt well with the volatility of our operating environment in the face of the continuing COVID-19 pandemic, maintaining supplies to our customers despite widespread supply chain and logistics disruptions. The spirit of 'One DSM' was stronger than ever. We are very proud and thankful that all around the world, our employees demonstrated resilience, initiative, flexibility and teamwork in dealing with this demanding environment and at the same time cared for the safety and well-being of colleagues, customers and partners. And this was achieved in a year that was also full of important projects and changes linked to the further shaping of DSM's future.

Accelerating our strategic journey to become a focused Health, Nutrition & Bioscience company

In September 2021, we took an important strategic decision to focus our resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. With a growing global population, the world is facing multiple and interconnected food system challenges that impact the health and wellbeing of people, animals, and the planet. Advances in digital technology and bioscience offer realistic, scalable solutions to tackle these challenges, creating new markets and innovation opportunities. With our strong combination of scientific competences and a growing portfolio of nutrition and health solutions, we are ideally positioned to capture these opportunities. Our Health, Nutrition & Bioscience strategy is underpinned by our 'global products, local solutions' business model and complemented by our growing competences in the rapidly emerging area of precision & personalization.

In view of our new strategic priorities, we simplified our operating structure and reorganized our Health, Nutrition & Bioscience activities into three Business Groups as of 1 January 2022, each with clear opportunities to benefit the health of people and the health of the planet, underpinning our growth plans. In line with our ambition to have a meaningful impact on improving the world's food systems, we are proud to have also announced a series of measurable new commitments related to Health for People, Health for the Planet and Healthy Livelihoods, as we strongly believe that with capability also comes responsibility.

Our ambition to become the global leader in Health, Nutrition & Bioscience, and to contribute to the food system transformation, requires huge efforts and therefore laser-like focus. This is why we took the carefully considered decision to review the strategic options for both our Engineering Materials and Protective Materials businesses, including a possible change in ownership. We are very proud of these two excellent Materials businesses, and they deserve the best possible environment in which to thrive and help drive the important shifts to a bio-based and circular economy that will underpin their continued success.

Very good 2021 financial performance

We delivered a strong full-year financial performance as we continued to successfully navigate dynamic market conditions, including global supply chain and logistics disruptions. Both Nutrition and Materials realized strong results, reflecting the quality of these businesses. On a continuing operations basis, our group sales were up 14% and Adjusted EBITDA was up 18%. Nutrition sales were up 10%, and Adjusted EBITDA was up 8% as the business demonstrated its operational performance and reliability as a supplier throughout the year, strengthening its customer relationships. Materials saw an exceptionally strong performance, with a recovery in Protective Materials and high demand for Engineering Materials leading to an increase in sales and Adjusted EBITDA of 27% and 60% respectively. Inflationary pressures, especially toward the end of the year, required appropriate pricing actions, of which the first positive effects were seen in the fourth quarter. Ultimately we realized an Adjusted Net Operating Free Cash Flow from continuing operations of €949 million, up 9%.

Continuing progress on People and Planet targets

Our people showed remarkable resilience as we continued to adapt our ways of working to the COVID-19 pandemic circumstances either by supporting remote and hybrid working or by establishing safe working environments in our laboratories and plants. In line with our culture and our philosophy of hybrid working we will build a new, highly sustainable, modern and inspiring head office in Maastricht (Netherlands). In terms of safety, we are pleased with an improvement in the Frequency Index of DSM Recordable Injuries to 0.22 from 0.24 in 2020, achieving our target level of less than 0.24. We continue to take action on our ambition to make our company fully incident- and injury-free. It was also encouraging to see that in such an eventful year, overall employee engagement remained at the high level of 76% and many associated indicators in the Employee Engagement Survey saw an increase. Looking at Inclusion & Diversity, the Executive Committee is now 40% female, the Management Board and Supervisory Board are now both 50% female, and progress was made on improving the representation of women (23% female executives) and under-represented nationalities at executive level (31%). We developed new ambitious Inclusion & Diversity commitments for the period 2022–2025.

On Planet, we remained well on track in terms of our greenhouse gas (GHG) emissions reduction, energy efficiency and purchased renewable electricity targets in 2021. We also accelerated our Science Based Target for GHG emissions reduction from 30% to 50% by 2030. This step-up provides a firm foundation for DSM to achieve net-zero by 2050. We doubled our internal carbon price from €50 to €100/t CO_2eq and signed an additional power purchase agreement whereby all our electricity needs in the USA became 100% renewable in 2021. We are therefore well positioned to exceed our target of meeting 75% of our global electricity needs from renewable sources by 2030 and to reach 100% at the earliest possibility. We received a double A rating on Climate and Water from CDP. And in 2021, an encouraging 64% of our total sales came from our Brighter Living Solutions – products that have a better environmental and/or social impact than mainstream solutions.

Relentless execution of our strategy

Our strategy served us very well in 2021. It helped us to set our priorities in order to drive organic growth, especially in view of the rapidly changing circumstances brought about by the COVID-19 pandemic. It also helped us make the right capital allocation choices, including the selection of acquisition targets and the development of our Health, Nutrition & Bioscience portfolio.

We made four important acquisitions: Midori in Animal Nutrition & Health; First Choice Ingredients and Vestkorn Milling in Food & Beverages; and the Flavor & Fragrance bio-based intermediates business of Amyris in Personal Care & Aroma. We progressed as per plan with the integration of the Erber businesses, and we completed the sale of our Resins & Functional Materials and associated businesses for an equity value of €1.6 billion.

We expanded our capabilities in the field of precision & personalization with, for example, the launch of the start-up Hologram Sciences, a consumer-facing company providing consumers with personalized solutions to manage their health. Meanwhile, we also launched Sustell™, an intelligent sustainability service that supports precision animal farming.

We also executed on our platform-based approach to driving innovation, resulting in good progress for our pipeline of exciting new products and solutions. Bovaer®, our innovative feed ingredient for reducing enteric methane emissions in ruminants, received market approval in Brazil and Chile and a positive EFSA opinion in the European Union. Bovaer® also formed the basis of collaborations with New Zealand dairy co-operative Fonterra and with JBS, one of the world's largest food companies. We also announced plans to create large-scale production capacity for Bovaer® by constructing a new plant at our site in Dalry (UK), with the support of Scottish Enterprise. Our EVERSWEET™ stevia sweetener was successfully launched by a number of customers, and we made good progress with our omega-3-rich algal oil Veramaris®. We launched ampli-D®, our fast-acting form of vitamin D for dietary supplements. We also laid the foundation stone of our future state-of-the-art Health & Nutrition Innovation Campus in Kaiseraugst (Switzerland).

Thank you

The year 2021 saw the retirement of two important figures for DSM who have made a huge contribution to our company. Rob Routs, Chair of our Supervisory Board since 2010, retired in May 2021. Under Rob's guidance, DSM continued the bold and progressive restructuring of its portfolio and its evolution into the purpose-led, performance-driven company it is today. Rob's successor is Thomas Leysen, who originally joined the Supervisory Board in 2020. Chris Goppelsroeder, President and CEO of DSM Nutritional Products, retired in April 2021 after a long and successful career in the company during which he developed this business into a world leader in health through nutrition. We would like to express our deep gratitude to both Rob and Chris, and to wish them both the very best for the future.

Our new organization, which was announced in September, came into effect on 1 January 2022 and was accompanied by a realignment of our leadership structure, with a new Executive Committee reflecting the establishment of three new Business Groups. We are now ready for the next step in our strategic journey, accelerating the growth of our company in Health, Nutrition & Bioscience. We would like to thank our employees for everything they achieved in 2021, and also to thank our customers, suppliers and shareholders for their continued trust in us as reflected, for example, in our higher Customer NPS score. We look forward to the next phase of our evolution with optimism and confidence, ready to address the challenges and seize the opportunities that lie ahead.

Stay safe and stay healthy!

Geraldine Matchett and Dimitri de Vreeze, Co-CEOs Royal DSM

Our approach to the Sustainable Development Goals

The UN Global Goals for Sustainable Development (SDGs)
In 2016, the United Nations launched the SDGs, a roadmap to a more environmentally and socially conscious and responsible world by 2030. At DSM, we believe that companies have a key role to play in achieving the SDGs. We believe that our combination of Health, Nutrition & Bioscience contributes toward achieving the SDGs.

Working on the SDGs
With our strong combination of scientific competences and our portfolio of health and nutrition solutions, we are ideally positioned to contribute to, and capture the growth opportunities offered by the urgent societal and environmental challenges linked to the way the world produces and consumes food. Our purpose-led, performance-driven strategy is based on the global megatrends and the SDGs. In 2021, we announced our new Food System Commitments for 2030 that demonstrate how we contribute to a positive impact on Health for People, Health for the Planet, and Healthy Livelihoods. For more information on how we contribute to food systems transformation, please see the company website.

Our initiatives and actionable framework comprise three pillars:

- *Improve*: we improve our own operations to do no harm to people and planet. We optimize our own operational impact by continually raising safety standards, promoting health and well-being in our own workforce, reducing our emissions and improving our resilience, increasing our use of renewable energy, improving our water consumption, and unlocking more value from limited resources
- *Enable*: we enable our customers and partners to have a positive impact by delivering products and solutions that enable them to deliver sustainable and healthy solutions for the planet and society
- *Advocate*: we advocate in our business ecosystem for systemic change — we advocate for the future we believe in and we fully accept our responsibilities as a corporate member of society

Our purpose and strategy align most closely with five of the SDGs, and we show here how we approach these core SDGs. Information about our engagements can be found in the Sustainability statements and throughout this Report.

SDG 2 and SDG 3

Through our commitments, initiatives, and approach, we align closest with the following SDG targets – 2.1, 2.2, 2.3, 3.2, 3.4 and 3.9.

The link between adequate nutrition and health has never been clearer. Diet-related non-communicable diseases (including diabetes, heart disease, stroke, and some cancers) has overtaken communicable diseases as the primary cause of deaths worldwide. At the same time, malnutrition in its various forms affects more than 30% of the world's population: more than 2.2 billion adults and children are overweight of which 770 million are obese (Global Nutrition report 2021), more than 820 million people go to bed hungry each night, and approximately two billion suffer from micronutrient deficiencies, or hidden hunger.

Our Commitments

- We will help fill the micronutrient gap of 800 million people by 2030 through fortified staple foods and health supplements that deliver a proven and cost-effective method of combating malnutrition, as well as empowering consumers to achieve healthier diets
- We will support the immunity of 500 million people by 2030 by delivering essential vitamins, minerals and other ingredients to consumers worldwide through high-performance dietary supplements
- Together with our partners we will support the livelihoods of 500,000 smallholder farmers across value chains by 2030 – we will achieve this by scaling up our innovative social enterprise model, Africa Improved Foods

Our initiatives

- We create awareness about the benefits of healthy diets and improved nutrition while continuing to develop new food solutions together with our partners of the World Business Council for Sustainable Development, the World Food Programme, World Vision, UNICEF, GAIN and Sun Business Network
- It is our responsibility to obtain comprehensive information on the safe use of our products, and to make conscious choices in the substance we use and produce, taking into account the whole product life cycle.

Our approach

Improve	Enable	Advocate
By reducing Occupational safety incidents and promoting Health & well-being in our own workforce, including good workforce nutrition.	By supporting customers to enable healthy and affordable food and nutrition through solutions such as the sustainable production of animal proteins, plant-based protein foods, fortified staples and public health supplements, immunity-supporting solutions, and food & beverage solutions. Our biomedical solutions improve quality of life for surgical patients.	For healthy diets within planetary boundaries, in partnerships to address sustainable and healthy nutrition through partners such as the World Business Council for Sustainable Development (WBCSD) and the World Economic Forum (WEF), and in Nutrition & Health initiatives, such as the UN World Food Programme (WFP), UNICEF, World Vision International and Scaling Up Nutrition (SUN).

SDG 7 and SDG 13

Through our commitments, initiatives, and approach, we align closest with the following SDG targets – 7.2, 7.3, 12.2 and 12.3.

The stability of the world's climate is under threat. We believe there is an urgent need to take action to curb climate change and its irreversibly damaging effects by dramatically limiting greenhouse gas emissions, transitioning to renewable energy, and adopting low-carbon emission solutions and processes. At the same time, it is also crucial to strengthen the resilience and adaptive capacity of societies against intensifying climate hazards impacting people and the environment.

The food, agriculture and forestry sectors cause at least one quarter of the worlds greenhouse gas emissions (IPCC, 2021). Agri-food also signifitancly impacts biodiversity loss at land and in the oceans. Transforming food systems from farm to fork will therefore be key to reduce environmental impacts and mitigate climate change.

The transition to a low-carbon economy will also create business opportunities and drive growth for our innovative and sustainable solutions. We contribute to the development of a low-carbon economy not just by reducing our own emissions but also by developing solutions to help customers and consumers to cut theirs.

Our Commitments

- We commit to reaching net-zero emissions across our value chains by 2050 and to set us on this path, we work with our Science Based Targets (SBT), comprising a scope 1 + 2 absolute reduction of 50% and a scope 3 intensity reduction of 28% by 2030 versus baseline 2016
- We will enable double-digit on-farm livestock emission reductions by 2030
- We will reach 150 million people with nutritious, delicious, sustainable plant-based protein foods by 2030
- Our SBT are supported by targets of an average annual energy efficiency improvement of >1% and 75% purchased electricity from renewable sources by 2030

Our initiatives

- We apply an internal carbon price of €100/t CO_2eq on our key investments, acquisitions and in our management reporting

Our approach

Improve	Enable	Advocate
Our long-term goal is net-zero emissions by 2050. To put us on track to achieve this, by 2030 we will reduce our own carbon footprint and improve the resilience of our assets and supply chains. Our approach to resilience and adaptation, including physical and transition risk assessments, is summarized in Taskforce on Climate-related Financial Disclosures (TCFD).	By enabling the low-carbon economy through solutions that help customers cut emissions and improve society's ability to adapt to climate change. These include products with significantly lower carbon footprints (such as Akulon®), improving the sustainability of animal farming (such as Bovaer®, which reduces methane emissions from cows by 30% or more) and advancing plant-based protein options (such as CanolaPRO®).	For accelerated climate action and building the movement for a low-carbon, resilient economy by showcasing solutions and best practices in key climate platforms such as COP26 and through collaboration with cross domain initiatives such as the World Economic Forum (WEF) and We Mean Business, and leading climate platforms such as the Carbon Pricing Leadership Coalition (CPLC), RE100 and GCA.

SDG 12

Through our commitments, initiatives, and approach, we align closest with the following SDG targets – 12.2, 12.3, 12.4 and 12.5.

As the world's population grows, the demand for Earth's resources will only continue to rise, and with a population projected to grow to 9.7 billion people by 2050, some estimates suggest we will need the equivalent of three Planet Earths by then to sustain our current lifestyles. In addition, over 30% of all food produced is either lost or wasted, representing a huge drain on natural resources. Considering our global economy is only 8.6% circular and planetary boundaries are crossed, we must move away from linear production and consumption systems and work together to build sustainable food and production systems. We are making important contributions to the development of a circular, bio-based economy founded on closed-loop solutions.

Our Commitments

- We will improve water withdrawal efficiency in water-stressed areas by 10% by 2030 versus 2020
- We will offer a full portfolio of alternatives that contain at least 25% recycled- and/or bio-based content by 2030 in our Engineering Materials business
- By 2030, at least 60% of Dyneema® fiber feedstock will be sourced from bio-based raw materials

- We will improve our volatile organic carbon (VOC) emission efficiency by 50% by 2021 (vs. 2015)

Our initiatives

- 'Safe and sustainable by design' is the leading principle in the development of new and better products and processes
- We advocate for SDG 12.3 'Halving food loss and waste' and we actively support our customers with reducing food loss and waste reduction from farm to fork, for instance in the dairy, juice, meat and eggs value chains

Our approach

Improve	Enable	Advocate
By unlocking more value from the limited available resources. Water and our impact on biodiversity are important aspects of our continuous improvement mindset. We minimize the use of substances of concern where possible.	By enabling our customers to design safer and more circular end-products, and minimize the use of finite resources. These include our solutions Veramaris® and CanolaPRO®, as well as bio-based and recycled-based solutions such as Akulon® RePurposed and bio-based Dyneema®.	For the transition from a linear to a circular and bio-based economy through global platforms such as the World Business Council for Sustainable Development (WBCSD), and circular economy platforms such as Platform for Accelerating the Circular Economy (PACE), Circle Economy and the Ellen MacArthur Foundation.

Our contribution across the SDGs

Our purpose-led, performance-driven strategy is based on global megatrends and the SDGs. We align our approach with five 'core' SDGs: SDG 2 and SDG 3, SDG 7 and SDG 13 and SDG 12. In addition to these 'core' SDGs, we believe that we can also apply our Improve, Enable and Advocate approach to a varying extent across all the SDGs. Below we indicate our estimated contribution in respect of all the SDGs.

		Improve	Enable	Advocate
1	No Poverty	••	•	••
2	Zero Hunger	•	•••	•••
3	Good Health and Well-Being	••	•••	•••
4	Quality Education	•	•	••
5	Gender Equality	••	•	•••
6	Clean Water and Sanitation	•	••	•
7	Affordable and Clean Energy	•••	•	•••
8	Decent Work and Economic Growth	••	•	••
9	Industry, Innovation and Infrastructure	•	••	••
10	Reduced Inequalities	••	••	••
11	Sustainable Cities and Communities	•	••	••
12	Responsible Consumption and Production	••	•••	•••
13	Climate Action	••	••	•••
14	Life Below Water	•	••	••
15	Life on Land	•	••	••
16	Peace, Justice and Strong Institutions	•	•	••
17	Partnerships for the Goals	••	••	•••

Estimate of contribution

• Minor   •• Moderate   ••• Major

Improve: The impact within our own operations

Enable: Products that enable our customers to deliver sustainable products for planet and society

Advocate: Advocating for the future we believe in and acting on our responsibilities

Report by the Managing Board

Purpose

For more than a decade, we have distinguished ourselves by embracing sustainability and providing value for all our stakeholders across the three dimensions of People, Planet and Profit. We have taken a decisive step as a **purpose-led company**, contributing to a brighter world for all with our science-based solutions. Our purpose is therefore fully anchored in our long-term purpose-led, performance-driven Strategy.

Our purpose is to create brighter lives for all

As a global leader in the science behind better health and nutrition, we have the opportunity, capability, and therefore responsibility to apply our resources and expertise where they can have the greatest impact. We use our bright science to deliver **positive transformations** at scale and to create brighter lives for all.

We aspire to **create value** for all our stakeholders — customers, employees, shareholders and society at large — and to build a stronger legacy and a brighter future for generations to come.

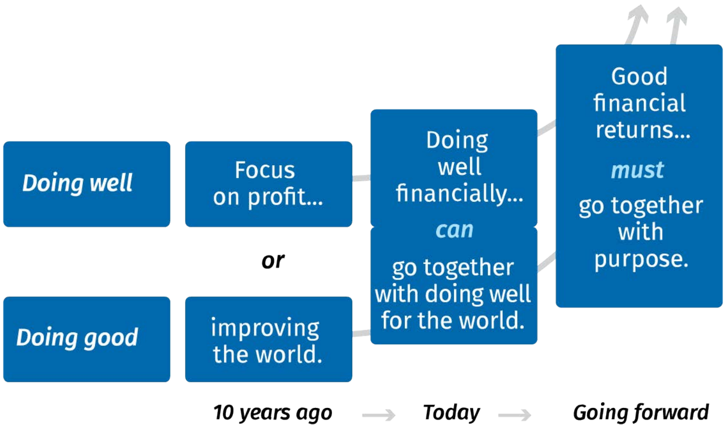
We are already reaching more than 2.5[1] billion people worldwide

Acting on our purpose

We make change happen in three ways:

- *Improve*: We improve our own operations to do no harm to people and planet. We optimize our own operational impact by continually raising safety standards, promoting health and well-being in our workforce, reducing our emissions, improving resilience, increasing our use of renewable energy, improving our water consumption, and unlocking more value from limited resources
- *Enable*: We enable our customers and partners to have a positive impact by delivering products and solutions that enable them to deliver sustainable and healthy solutions for the planet and society
- *Advocate*: We advocate in our business ecosystem for systemic change — we advocate for the future we believe in and we fully accept our responsibilities as a corporate member of society

1 Lives Reached is a measure of the estimated number of consumers reached each year via products of customers and other third parties which contain DSM products and solutions. This estimate is based on key market insights relating to market share, usage patterns and product composition. Mathematical modeling is used to eliminate double counting. For more information, see Explanation of some concepts and ratios.



We are convinced that the private sector as a whole needs to deliver value for all stakeholders — not just employees, customers and shareholders, but the world's communities and the individuals who live in them. We feel this responsibility and therefore take an **integrated approach** to act upon our purpose by reducing our negative impact and increasing our positive impact through the implementation of a range of **internal and external initiatives**. These include:

- increasing our **Science Based Targets** to deliver an absolute **reduction of greenhouse gas** (GHG) emissions from our operations (scope 1 + 2) **by 50% by 2030** versus our 2016 baseline, providing a firm foundation for DSM to achieve **net-zero by 2050**
- making a set of measurable **Food System Commitments** covering Health for People, Health for the Planet, and Healthy Livelihoods. These new commitments support our ambition to have a positive and meaningful impact on the world's food systems and contribute to the achievement of the **UN Sustainable Development Goals** 2, 3, 12 and 13

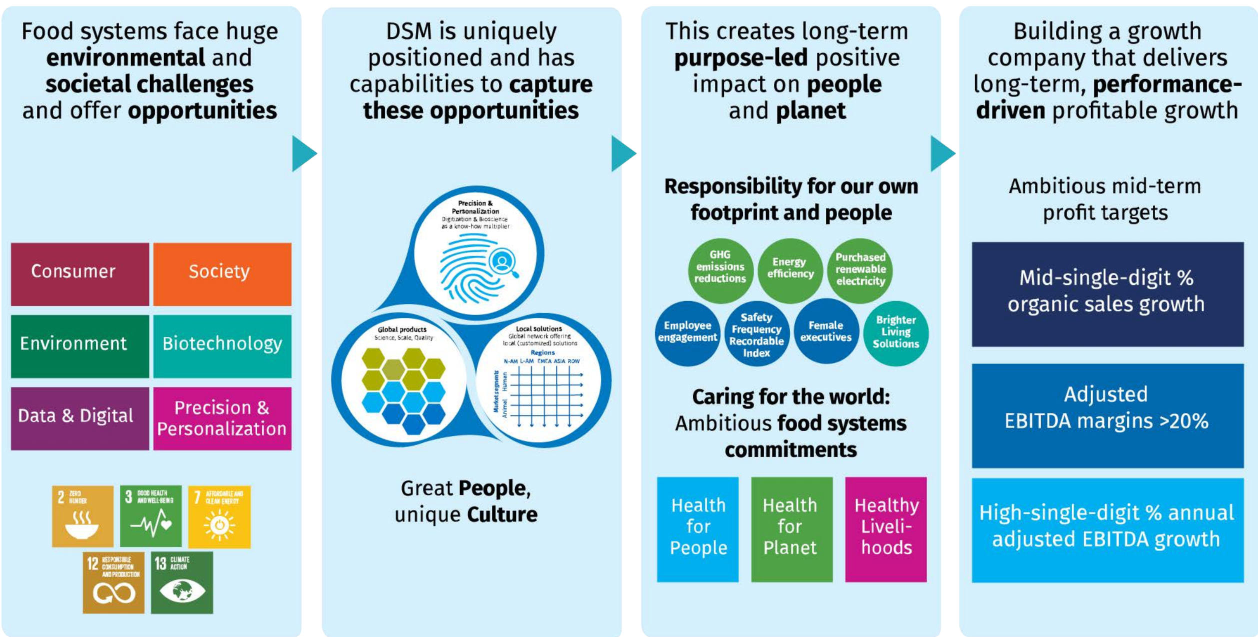
An overview of these initiatives can be found in Our approach to the Sustainable Development Goals and throughout this Report. Examples of our purpose-led solutions are provided in the Case studies in this Report.

Strategy

At a glance

- +13% Organic sales growth versus +2% in 2020
- +18% Adjusted EBITDA growth from continuing operations versus 2020, with Nutrition +8% and Materials +60%
- +9% Adjusted net operating free cash flow growth from continuing operations versus 2020
- ~23%[1,2] GHG scope 1 + 2 reduction – cumulative structural improvement (baseline 2016) versus ~18% in 2020
- 0.22 Frequency Index of Recordable Injuries versus 0.24 in 2020
- 76% Employee Engagement Index versus 76% in 2020

Strategy



Focus on Health, Nutrition & Bioscience

In September 2021, we announced our decision to accelerate our journey toward becoming a company focused on Health, Nutrition & Bioscience, using our resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food.

In the face of multiple systemic and interconnected food system challenges that impact the health and well-being of people, animals, and the planet, the Intergovernmental Panel on Climate Change (IPCC) Report of 2021 warns our world is rapidly approaching critical and irreversible tipping points. Climate change is already creating considerable challenges for food systems worldwide, while at the same time food production remains one of the largest contributors to environmental degradation. Advances in digital technology and bioscience offer realistic scalable solutions to tackle these challenges, creating new markets and innovation opportunities. With our strong combination of scientific competences and growing

1 All data presented in People and Planet are subject to the Non-financial reporting policy.
2 In total, our absolute reduction of scope 1 + 2 greenhouse gas emissions was 27% versus the 2016 baseline.

portfolio of nutrition and health solutions, we are **ideally positioned** to capture these opportunities and create value for people and planet as well as our business.

We underpinned our transformation by creating three market-focused Business Groups in which we organize our Health, Nutrition & Bioscience activities with effect from 1 January 2022:

- Animal Nutrition & Health
- Health, Nutrition & Care
- Food & Beverage

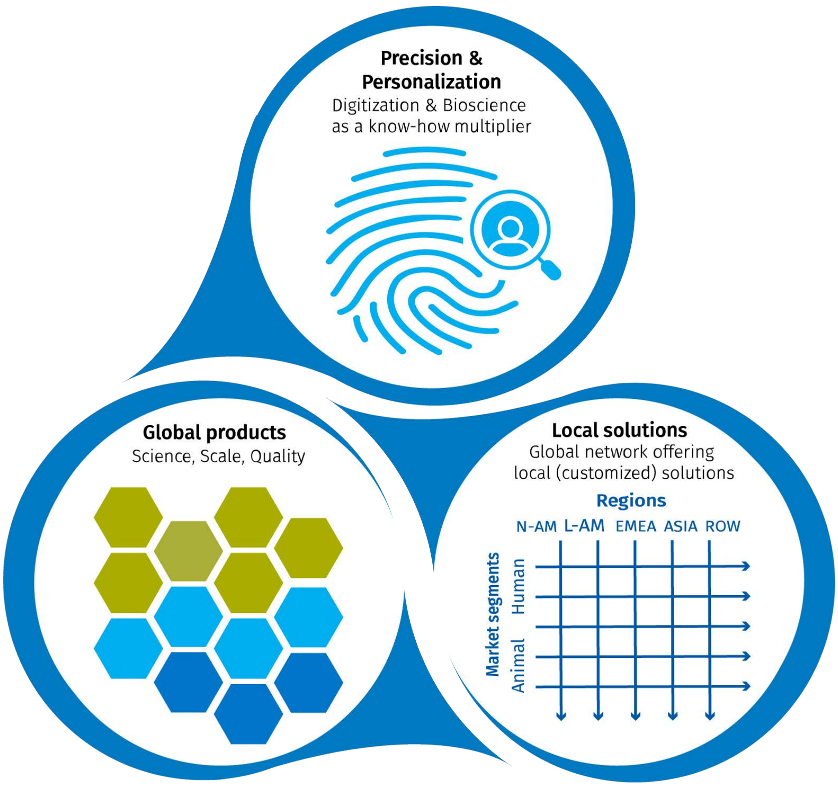
Each Business Group will have clear opportunities to **benefit** the **health of people** and the **health of the planet**, underpinning our growth plans. Each will be much more closely aligned with its respective customers and, through the integration of activities currently performed by DSM's various scientific centers, will be fully equipped to rapidly develop impactful, science-based innovations (for more detail, see Innovation**).** We will continue to make acquisitions that strengthen and develop critical capabilities to support our organic growth.

At the same time, we have started a **review of strategic options** for our Materials businesses, including a possible change of ownership. For more detail, see the section on Materials.

Our business model for growth: global products, local solutions, and precision & personalization

Our Health, Nutrition & Bioscience strategy is underpinned by our **'global products, local solutions'** business model and complemented by our growing competences in the rapidly emerging area of precision & personalization.

Our business model for growth: global products, local solutions, precision & personalization



Our leading, and growing, global product portfolio includes vitamins, nutritional lipids, carotenoids, minerals, eubiotics, enzymes and yeasts, as well as texturants, flavors and cultures. Our acquisition of First Choice Ingredients in 2021 added dairy-based savory flavorings for taste and functional solutions across a wide range of applications, while our acquisition of the flavor and fragrance (F&F) bio-based intermediates business of Amyris, Inc. expanded our Aroma portfolio. Bovaer® and our partnerships Avansya and Veramaris have recently been added through our own innovation efforts.

Delivering local solutions across all regions, our end-market focus allows us to better understand market needs, enable solution selling, and open up innovation headroom – for example, more relevant solutions supporting early life nutrition and dietary supplements in Health, Nutrition & Care. With a significant and diverse premix footprint, together with superior formulations and delivery systems and increasing competences, in analytics and diagnostics, we are able to develop innovative and sustainable local solutions for our customers around the world.

Drawing on our emerging capabilities in digitization, we are swiftly developing an additional dimension to our future growth: precision & personalization. Developments in data science and bioscience are opening up exciting opportunities to address challenges in health and nutrition. Leveraging our reputation, science-based competences and global customer base, we seek to create digital solutions that deliver unprecedented levels of precision. This new standard in precision has the capability to deliver more targeted and therefore, effective health solutions as well as measurable, sustainability benefits. Examples of this approach include:

- Hologram Sciences, Inc., our personalized nutrition venture, which brings together all the necessary capabilities to develop end-to-end turnkey solutions that are commercially validated with consumers
- Sustell™, a first-of-its-kind intelligent sustainability service that delivers accurate, simple and actionable farm-level solutions to reduce the environmental footprint and improve the profitability of animal farming
- Verax™, a data-driven, blood-based, biomarker-screening service that uses analytics to deliver a deeper and more accurate understanding of the health and performance of animals

Our focus in Animal Nutrition & Health

Addressing the United Nations Sustainable Development Goals 2 (Zero Hunger), 3 (Good Health and Well-Being), 12 (Responsible Consumption and Production), 13 (Climate Action), and 14 (Life Below Water), we have identified six sustainability platforms that address the major challenges facing the animal farming industry today. Our ambition is to radically improve the sustainability of animal farming worldwide, creating innovative and sustainable solutions that will deliver significant value for our customers and at the same time for our company. These are:

- Improving the lifetime performance of farm animals
- Making efficient use of natural resources
- Reducing emissions from livestock
- Helping tackle antimicrobial resistance
- Reducing reliance on marine resources
- Improving the nutritional quality of meat, milk, fish and eggs, while reducing food loss and waste

With our unmatched portfolio of products and services, we are in a leading position to address these challenges through solutions that include, for example:

- algal-based omega-3 for fish feed (Veramaris®)
- methane-reducing feed additives for cows (Bovaer®)
- mycotoxin absorbers to prevent fungal contamination in animal feed
- a comprehensive eubiotics portfolio to displace use of antibiotics as growth promoters
- data-driven decision-making tools for farmers, such as Sustell™, and for veterinarians and animal health practitioners, such as Verax™
- We continue to build specialist competences to pursue new health solutions and support feed solutions for additional species, improve the end-to-end experience for the customer, and invest in our direct business-to-farmer and overall go-to-market capabilities.

Our new precision services business, meanwhile, aims to improve sustainability, animal health and welfare, and the profitability of animal production. Precision services uses data analysis and advanced diagnostic tools to measure and pinpoint specific nutritional, health and environmental issues to tackle challenges and offer bespoke solutions.

Our focus in Health, Nutrition & Care

In Health, Nutrition & Care, we address the United Nations Sustainable Development Goals 2 (Zero Hunger), 3 (Good Health and Well-Being) and 12 (Sustainable Consumption and Production). As a leading provider of specialty nutritional and personal care ingredients and biomedical materials focusing on immunity, gut, brain and skin health, and solutions for orthopedics and cardiovascular, we aim to help keep the world's growing population healthy. Founded on our innovative and sustainability-focused competences, our role as a fully integrated provider of solutions allows our customers to focus fully on the branding and commercialization of their products and creates opportunities for our own B2C business, i-Health.

Some of the key innovation focus areas include:

- Preventive health and immunity through the provision of micronutrients such as vitamins C and D, and omega-3s, together with innovative solutions that include our algal lipids and ampli-D®, our rapid-acting and high-potency form of vitamin D
- Human milk oligosaccharides (HMOs), where we are building an exciting innovation roadmap to address currently unmet needs in early life nutrition, dietary supplements and medical nutrition together with promising potential applications in pet foods
- Personalized nutrition, which is a rapidly developing growth area spearheaded by our venture Hologram Sciences, Inc., where we work closely with leading start-ups in which we have already invested, such as Tespo and AVA

In addition, we are continuing our long-term commitment to champion efforts to increase the availability of micronutrient-rich food in countries with the world's most vulnerable communities through various partnerships, such as with the United Nations World Food Programme (WFP), UNICEF and World Vision, as well as our joint venture Africa Improved Foods (AIF).

Our focus in Food & Beverage

In Food & Beverage, we address the United Nations Sustainable Development Goals 2 (Zero Hunger), 3 (Good Health and Well-Being) and 12 (Sustainable Consumption and Production). The food & beverage market is subject to rapid change, driven by evolving consumer needs and expectations regarding delicious, nutritious and sustainable food choices. The challenge for our customers, the food & beverage producers, is to anticipate these changes and respond by developing and delivering on-trend, differentiating products faster than their competitors. Our customers are therefore seeking:

- products that deliver specific taste and texture attributes
- products that deliver improved nutritional value and the associated health benefits
- approaches that deliver more resource-efficient and sustainable food production

In this market, we are well positioned to offer sustainable solutions that address taste, texture and health in an integrated way, with our unique and extensive portfolio of global products (comprising dairy cultures as well as enzymes for applications across dairy, baking and beverages; coatings and preservation systems; yeast extracts, process flavors and texturizing hydrocolloids; and vitamins, minerals and nutritional lipids) and our deep application expertise in our core end-market segments, based on our extensive biotechnological competences.

To strengthen this proposition in Food & Beverage, we will continue to deepen our integrated application know-how, broaden our global product portfolio, combine ingredient and application innovation, and maximize opportunities for inorganic growth.

An example of our ingredient and application innovation is CanolaPRO®, a sustainable plant-based protein source based on rapeseed. This innovation was reinforced in 2021 by our acquisition of Vestkorn Milling, a leading European producer of pea- and bean-derived ingredients for plant-based protein products. This represents a new building-block in our portfolio of solutions for meat and dairy alternatives.

Another example of product innovation is **Avansya**, our 50/50 partnership with Cargill to bring our great-tasting, zero-calorie, cost-effective, non-artificial sweetener EVERSWEET™ to market at scale.

Our focus in Materials

Following the sale of our Resins & Functional Materials businesses to Covestro AG, our Materials activities now consist of **DSM Engineering Materials** and **DSM Protective Materials**. These are both high-quality businesses with a strong growth and earnings potential.

In view of our accelerated strategic journey to become a focused Health, Nutrition & Bioscience company, these two excellent Materials businesses may not be able to achieve their full potential in driving the important industrial shift to a bio-based and circular economy under our ownership. Going forward, the Materials Business Groups will therefore be managed largely on a stand-alone basis. We are **reviewing strategic options** for both Materials businesses, including a **possible change of ownership**.

Meanwhile, we will continue to develop our **high-growth and high-margin** specialty Materials businesses. These focus on **three growth platforms**: Improved Health & Living, Green Products & Applications, and New Mobility & Connectivity.

Our focus in Innovation

Innovation is what transforms our '**Bright Science**' into '**Brighter Living**'. We aim to develop novel, sustainable solutions by leveraging an enterprise-wide approach that utilizes our unique scientific capabilities and our profound understanding of **health and nutrition for both people and animals**. Supported by a global network of advanced centers of biotechnology and chemistry as well as strategic partnerships, this enables us to develop breakthrough innovations with proven health benefits.

Innovation sales – defined as products and applications that have been introduced during the previous five years – have also improved our profitability, delivering higher margins than the average of our running business. We continuously invest in innovation in order to maintain the contribution from resulting sales at around 20% of total sales, which we consider to be a healthy proportion in view of the overall balance of our product portfolio and product life cycles.

Innovation as an enterprise-wide endeavor

Our long-term success requires us to be able to serve our customers with innovations that are grounded in **market insights** and enabled by **digital technology and bioscience** as well as best-in class **production and launch capabilities**. In order to achieve this, we regard innovation as an enterprise-wide endeavor whereby those who invent, make and sell have a shared responsibility. This results in full alignment from ideation to commercialization and maximizes the opportunities for our R&D to make a positive difference for people, planet, and profit. By encouraging an environment which supports both the short-term needs of our businesses today, and the longer-term requirements for breakthrough advances in science, we create an engine for growth, especially as we begin to realize the next frontier of our business model: **precision & personalization**.

Driving our innovation pipeline through four growth themes

Our platform-based approach helps us to deliver a business-anchored pipeline of innovations that are aligned with our future strategic needs and support our growth ambitions. We have **four overarching growth themes** that address major global societal, technological, and environmental trends which in turn inform our innovation platforms.

Growth themes and innovation platforms

Pathways Sustainable ingredient manufacturing	• Bio-based Vitamins & Carotenoids • Sustainable Lipids
Proteins Driving adoption of sustainable proteins to feed the population	• Sustainable Food Proteins • Low-footprint Feed Proteins • Animal Emission Reduction
Prevention Healthy solutions provided by nature	• Healthy Gut • Immunity • Sugar Reduction • Cultures Powerhouse • Pharmaceutical Nutrition • Personal Care • Animal Gut Health
Precision Digitally-enabled business models	• Personalized Nutrition • Animal Precision Nutrition

We focus on four growth themes – Pathways, Proteins, Prevention and Precision:

Pathways: using our base strength in chemistry and biotechnology to manufacture ingredients with a better environmental footprint. Through our strengths and advances in biotechnology we can make innovative use of microorganisms to produce ingredients and intermediates – for example, the innovation platform of Sustainable Lipids, which includes our algal-based omega-3 Veramaris® for more sustainable aquaculture.

Proteins: solutions that reduce the footprint of animal protein production and meet the growing demand for meat, fish and dairy alternatives – for example, the Animal Emission Reduction platform, which includes our feed additive Bovaer®, which significantly reduces methane emissions from cattle, and plant-based specialty proteins such as CanolaPRO®.

Prevention: using our rich portfolio of active ingredients (e.g., vitamins, lipids, human milk oligosaccharides) to optimize health and immunity. For example, as we learn more about how our ingredients modulate the gut microbiome, we see potential to develop solutions that build resilience to stress and disease by improving the gut microflora in people and animals. In the Animal Gut Health platform, for example, we have a full range of antibiotic alternatives that promote animal health while tackling anti-microbial resistance (AMR).

Precision: digitally enabled new business models to enhance nutrition precision, ensuring the right nutrition to maximize health for people and animals. An example is our personalized nutrition platform, delivered through Hologram Sciences, Inc., which provides personalized nutrition and coaching recommendations for people.

Delivering a long-term, purpose-led, positive impact

Responsibility for our own footprint and care for our people

We are a global, purpose-led, performance-driven Health, Nutrition & Bioscience company. We take responsibility for our own footprint and care for our people. Over the course of recent years, we have developed, and committed to, an ambitious set of goals to reduce our emissions and improve the energy efficiency of our operations worldwide. Recently we accelerated our validated Science Based Target for 2030 on greenhouse gas emissions (scope 1 + 2) versus baseline 2016, increasing our target level from 30% to 50%. At the same time, we reiterated our intention to source 75% of our electricity from renewable energy sources by 2030.

Concurrently, we have long-held ambitious targets on **employee engagement**, **safety** and **diversity**, in recognition of our respect for, and responsibility toward, our colleagues around the globe. Among these, we set ourselves the target to achieve **employee engagement** of over 75% by the end of 2021. We also set ourselves the target to have 30% of our **executive roles** fulfilled by females by the end of 2025.

As a company, we are committed to create brighter lives for all. Hence our focus on Brighter Living Solutions – products and services that have a better environmental (ECO+) and/or social (People+) impact than mainstream solutions through the entire life cycle, from raw materials to manufacturing, end-use and disposal.

For more details on our initiatives and progress, see People and Planet and Our approach to the Sustainable Development Goals.

Making a positive impact on food systems

In 2021, we announced a series of new, quantifiable commitments aimed to address urgent societal and environmental challenges linked to how the world produces and consumes food by 2030. We are one of the first companies in the consumer ingredient sector to make our societal impact explicit through a set of measurable Food System Commitments. These commitments cover three areas where we believe we can make the greatest positive impact together with our business partners: Health for People, Health for Planet, and Healthy Livelihoods.

Through investment in our (bio)science-based innovations, extensive partnerships, and advocacy activities, we aim to help deliver change to ensure accessible, affordable, healthy nutrition and healthy livelihoods within planetary boundaries. Our new strategic Food System Commitments by 2030 are as follows:

People

- Enable the micronutrient gap to be closed for 800 million vulnerable people
- Support the immunity of 500 million people

Planet

- Enable double-digit on-farm livestock emission reductions
- Reach 150 million people with nutritious, sustainable plant-based protein foods

Livelihoods

- Support the livelihoods of 500,000 smallholder farmers across value chains, acting together with partners

These commitments support the UN Sustainable Development Goals 2, 3, 12 and 13. We are committed to continue to obtain reasonable assurance on our impact reporting, including these new commitments, as we plan to report our progress every year in our Integrated Annual Report.

Mid-term financial targets and cash allocation policy

We aim to deliver **ambitious mid-term profit targets**:

- Mid-single digit % organic sales growth
- An above 20% adjusted EBITDA margin
- High-single digit % adjusted EBITDA growth

The **key drivers** to deliver sustained organic sales growth are our innovation platforms, commercial synergies from recent acquisitions which come on top of our underlying market growth, and the continued expansion of our customer-centric solution offerings.

Our **cash allocation policy** has a clear order of priority for cash deployment:

- Disciplined capital expenditure for organic growth: approximately 6.5% of annual sales
- A stable, preferably rising dividend
- Disciplined M&A
- In the absence of value-creating M&A, capital to be returned to shareholders

We remain committed to maintaining a strong, investment-grade credit rating. With our dividend policy of a stable, preferably rising dividend, we target an average payout of 40–50% of adjusted earnings.

Report on progress in 2021

Our strategy served us well in 2021. It helped us to set our priorities in order to drive organic growth, especially in view of the changing circumstances brought about by the continuing COVID-19 pandemic. It also helped us make the right capital allocation choices, including the selection of acquisition targets and the development of our Health, Nutrition & Bioscience portfolio, where appropriate.

Highlights:

- We accelerated our journey toward becoming a focused Health, Nutrition & Bioscience company, started a review of strategic options for our Materials businesses, including a possible change of ownership, simplified our operating structure, reorganizing our activities into three Business Groups, and installed a new leadership structure to reflect our strategic vision and new organizational structure
- We acquired the Flavor & Fragrance bio-based intermediates business of Amyris, Inc., Midori USA, Inc (eubiotics), First Choice Ingredients, Inc. (savory flavorings), and Vestkorn Milling (plant-based proteins) and divested our Resins & Functional Materials and associated businesses
- We made good progress on our platform-based approach to driving innovation, ensuring a healthy pipeline of new products and solutions and made significant progress to capture the value from key innovations such as Veramaris®, Bovaer®, EVERSWEET™ and ampli-D®
- We made progress on our purpose-led sustainability ambitions in People and Planet
- We announced a number of new Food System Commitments in support of the achievement of the UN Sustainable Development Goals 2, 3, 12 and 13
- We launched Team DSM for the 2021 season onwards with the aim of galvanizing wider public action around the importance of the health of people and of the planet, in line with our purpose-led, performance-driven strategy

Progress in Sustainability: People and Planet

At DSM, sustainability is not only our core value and a key responsibility; it is also a key business driver that is fully engrained in our purpose, strategy, business and operations. Our approach for bringing about positive change is to improve, enable and advocate. The below table provides an overview of our progress in terms of our key sustainability metrics:

	GHG emissions reduction Scope 1 + 2 (Absolute)	GHG emissions reduction Scope 3 (Intensity)	Energy efficiency improvement year-on-year	Purchased renewable electricity	Employee engagement favorable score	Safety frequency recordable index	Female executives	Brighter Living Solutions
2019 Ambitions	30%[2] by 2030 (vs 2016)	28% by 2030 (vs 2016)	>1% average annually to 2030	75% by 2030 (vs 2016)	>75% by 2021	<0.24[5] by 2021	25% by 2021	>65% by 2021
2022 Ambitions	50% by 2030 (vs 2016)	28% by 2030 (vs 2016)	>1% average annually to 2030	75% by 2030 (vs 2016)	>76% by 2022	<0.20 by 2027	30% by 2025	see note 6
2021 Realization[1]	~23%[3]	8%	6%	72%	76%[4]	0.22	23%	64%[7]

1 These data are subject to the Non-financial reporting policy.
2 Strengthened to 50% by 2030 in 2021.
3 We estimate that the effect of the underlying cumulative structural improvements in absolute GHG emissions was approximately 23% in 2020, versus the 2016 baseline. The total cumulative absolute reduction was 27%, versus the 2016 baseline.
4 Survey of payroll employees in October 2021, excluding recent acquisitions and divestments.
5 Strengthened from <0.25 in 2021.
6 A new methodology, providing improved transparency and granularity while ensuring reporting against new and future requirements of regulatory authorities will be applied as of January 2022 and will be provided at the publication of the half year results of 2022.
7 For a small percentage of sales (<0.7 % of sales) classified as Brighter Living Solutions, the environmental impact is considered 'best in class' together with other solutions.

We have leading positions in important ESG indices for investors: we hold a platinum sustainability medal from EcoVadis putting us in the top 1% of our industry, we are ranked among the leaders in our industry by Sustainalytics, have an AAA rating from MSCI, have Prime Status with ISS-ESG, and have a leading position in the rankings of Moody's ESG (formerly Vigeo Eiris).

Planet

On Planet, we accelerated our Science Based Target for greenhouse gas (GHG) reduction (scope 1 + 2) from 30% to 50% by 2030 versus baseline 2016. This step-up provides a firm foundation for DSM to achieve net-zero by 2050. Furthermore, we improved the environmental impact of our own operation and remained well on track in terms of our GHG reduction, energy efficiency and purchased renewable electricity targets in 2021.

- The underlying structural improvement in absolute greenhouse gas reduction from operations in 2021 compared to the 2016 baseline is ~23%, versus our target of 50% by 2030
- Energy efficiency has improved by 6% compared to full year 2020 versus our >1% average annual ambition.
- 72% of purchased electricity came from renewable resources compared with 60% in 2020, firmly on course to achieve our interim target of 75% by 2030 in the pursuit of 100%

This progress supports our commitment to a long-term pathway to work toward net-zero GHG emissions across our operations and value chains by 2050. We doubled our internal carbon price from €50 to €100 per ton of CO_2eq and signed an additional power purchase agreement whereby all our electricity needs in the US became 100% renewable in 2021. We received a double A rating on our Climate strategy and Water stewardship by CDP, the global non-profit environmental disclosure platform.

We enabled our customers to deliver more sustainable solutions to their (end) consumers Our purpose-led innovation pipeline is fully aligned with our five focus SDGs.

More about our environmental performance can be found in the Planet section.

People

Our People showed remarkable resilience as we continued to adapt our ways of working to the COVID-19 pandemic circumstances either by supporting remote and hybrid working or by establishing safe working environments in our laboratories and plants. In terms of safety we can be pleased with an improvement in the Frequency Index of DSM Recordable Injuries to 0.22 from 0.24 in 2020, achieving our target level of less than 0.24. We continue to act on our ambition to make our company fully incident- and injury-free. It was also encouraging to see that in such an eventful year, overall employee engagement remained at the high level of 76% and many associated indicators in the Employee Engagement Survey saw an increase. Looking at Inclusion & Diversity, the Executive Committee is now 40% female, the Management Board and Supervisory Board are 50% female, and progress was made on improving the representation of women (23% female executives) and under-represented nationalities at executive level (31%). We developed new ambitious Inclusion and Diversity commitments for the period 2022–2025. More information can be found in the People section.

Brighter Living Solutions

In 2021, 64% of our net sales, including the sales of our discontinued operations, came from products that have a better environmental (ECO+) and/or social (People+) impact than mainstream solutions. We call these our **Brighter Living Solutions (BLS)**. Discontinued operations were included until divestment date, and their exclusion negatively impacts the overall KPI. Positive impact came from the assessment of our newly acquired HMO portfolio, and new significant assessments in our Nutrition business.

Enabling increased Precision & Personalization

The year 2021 saw the full mobilization of our Digital Nutrition Acceleration (DNA) program. Digital is no longer merely an enabler for our organization: it is also a strategic business driver, and the DNA program creates the digital foundation for key precision & personalization initiatives such as:

- Hologram Sciences, Inc., our personalized nutrition venture, which brings together all the necessary capabilities to develop end-to-end turnkey personalized nutrition solutions that are commercially validated with consumers
- Sustell™, a first-of-its-kind intelligent sustainability service that delivers accurate, simple and actionable farm-level solutions to reduce the environmental footprint and improve the profitability of animal farming
- Verax™, a data-driven decision-making tool that helps veterinarians, nutritionists and operations make better decisions about their animals' health

Another important milestone delivered as part of the DNA program in 2021 was the launch of a new customer-centric e-commerce tool, which enabled 10% of DSM's sales to be moved online in just a few months. We also launched the Analytics Academy, defining and establishing our first communities of practice for Data Science, Data Engineering and Cloud Engineering.

Our scaling-up of automation continued in 2021, with another 40 bots being delivered, bringing our total to more than 200 and enabling the automation of numerous processes in Finance, Human Resources and Purchasing. The pandemic required us to accelerate the adoption of digital tools and practices among our workforce and laid down the key principles of new ways of working that will thrive in the Next Normal. We piloted with success our digital mindset change program in Latin America, the Netherlands and China by inviting employees to learn, ideate and try out digital approaches more and more often.

Executive Committee. Top row: Dimitri de Vreeze, Geraldine Matchett and Patricia Malarkey. Bottom row: Philip Eykerman, Helen Mets and Cristina Monteiro.

Case studies

Responsible consumer choices with plant-based fish alternatives

Opportunities to make more responsible choices

Plant-based meat alternatives have transformed grocery store shelves and restaurant menus alike with a broad range of meatless options that appeal to consumer demand for healthy and sustainable diets. Now, plant-based fish alternatives are catching this wave.

There is a growing demand for plant-based alternatives alongside traditional meat, fish and dairy products, as consumers search for foods that deliver an authentic eating experience without compromising on taste and texture. Whether for personal, health or sustainability reasons, or from plain curiosity, more and more people are adding plant-based options to their food choices and are adopting flexitarian, vegetarian, or vegan diets. At the same time, the importance of a quality nutritional profile is attracting increasing recognition.

Today’s eco-conscious consumers are increasingly seeking opportunities to make **responsible choices** that help reduce the impact on the planet’s limited resources. Plant-based fish alternatives are emerging as an **appealing option** for the rising number of individuals adopting flexitarian, vegetarian and vegan lifestyles. Plant-based seafood is currently a small fraction of the overall plant-based meat and seafood category, accounting for less than 1% of sales in the US. This market is developing rapidly, however, and its potential presents a compelling prospect to manufacturers that have the capability to formulate authentic, tasty and enticing plant-based **fish-alternative products**.

Consumers looking for **plant-based alternatives** to traditional fish products are concerned about the sustainability of the planet, and especially the ecosystems of the ocean. To ensure that plant-based alternatives will resonate with eco-conscious consumers, it is essential to offer comparable **nutritional value** while reproducing the nuanced flavors and textures associated with fish and shellfish.

Delivering taste, texture and nutritional value

A 2020 report by the United Nations Food and Agriculture Organization (FAO) highlighted the fact that annual **global per capita fish consumption** had more than doubled between 1961 and 2017. Meanwhile, in the past 35 years alone, the world’s population has grown by more than 50%, according to FAO. Research shows that 84% of people in the UK – to give just one country as an example – say that being environmentally friendly is important to them, and concerns over diminishing fish resources are growing.

Between 1961 and 2017, annual global **fish consumption** more than doubled,

from **9** KG to **20.3** KG

Consumers interested in plant-based alternatives are unwilling to compromise on **sensory experience**. Delivering attractive **taste, texture and mouthfeel** is therefore essential. Manufacturers, however, face a serious challenge in trying to meet the taste and sensory properties of traditional fish products. Most commercially available fish flavors are produced by processing parts of fish or shellfish. These products consequently fail to meet vegetarian criteria and are not fully sustainable (nor are they halal or kosher). A parallel consideration is the challenge of ensuring **nutritional value** in terms of omega-3 content as well as vitamins and other micronutrients. Taste, texture and nutritional value all have to be delivered in a single package.

Our solutions

In 2021, we launched **Maxavor® Fish YE**, a first-ever vegan, natural and 100% allergen-free flavor solution. Maxavor® Fish YE has been designed to overcome common formulation challenges in the development of premium plant-based fish alternatives, such as vegetarian fish nuggets and vegan fish sauce. It delivers an authentic fish taste, texture and mouthfeel. It can also help to amplify flavor in actual fish-based products.

Maxavor® Fish YE is available in two profiles, depending on the application: one for rich and oily, dark-fleshed fish (e.g., plant-based canned tuna) and the other for white-fleshed fish (e.g., plant-based fish cakes). **Maxavor® Fish YE** won a prestigious **Food Ingredients Europe Innovation Award** in November 2021, coming top of the 'Plant-Based Innovation' category.

life's®OMEGA from DSM is used in plant-based and vegan food & beverage products ranging from margarine to plant-based fish alternatives, as well as in dietary supplements. ***life's®OMEGA*** is the only algal (plant-based) omega-3 DHA and EPA alternative with significant levels of EPA and DHA. It delivers the features of marine-based EPA and DHA but with the benefits of sustainable plant-based sourcing. *life'sDHA®* is already finding applications in meat and fish alternatives in North America (EU approval for its use in meat and fish alternatives is pending at time of publication of this Report).

Our impact

Following its launch in March 2021, **Maxavor® Fish YE** is now being used in a number of vegan canned tuna products across the US, the UK, the Netherlands and Asia. In South Africa, the Maxavor® Fish YE solution is being used in fishcakes, while in New Zealand, Russia and Romania, it is being used to produce vegan oyster sauce.

In Latin America, another of our products – ***life'sDHA®*** – has been successfully used by one of the region's leading producers of plant-based products to improve the nutritional value of its new vegan tuna alternative.

Stronger together

Reading Scientific Services Ltd (RSSL), an independent applications laboratory, has been exploring the potential of Maxavor® Fish YE. RSSL found it to be invaluable in terms of achieving an authentic flavor profile and helping to mask any off notes from the base ingredients.

"For an upcoming tuna alternative, we saw a noticeable improvement in the flavor profile when we included Maxavor® Fish YE in the formulation."

Carole Bingley, Senior Associate Principal Scientist, Reading Scientific Services Ltd

How we support the SDGs

SDG 12: Ensure sustainable consumption and production patterns

SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

The development of our portfolio of plant-based fish alternatives supports the attainment of UN Sustainable Development Goals 12 and 14 by enabling the development of more sustainable consumer products that help protect the planet's limited resources. These products also support our Food System Commitment to reach 150 million people with nutritious, sustainable, plant-based protein foods by 2030.

Combating mycotoxins to support animal farming and protect human health

The damaging effects of mycotoxins

Mycotoxins are a group of more than 700 toxic compounds produced by naturally occurring fungi. These toxic compounds can contaminate a wide range of staple commodities and feed raw materials. Failure to protect livestock against mycotoxins may compromise animal welfare, reduce animal performance, and impair the quality of animal byproducts (e.g., horn and hide).

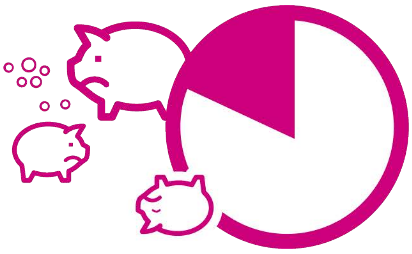
Exposure of livestock to mycotoxins intensifies the usage of natural resources and causes an increase in greenhouse gas emissions associated with reduced animal performance. Once mycotoxins are present in the feed, the animal redirects the energy that should be used to achieve the maximum protein deposition in its body, milk or eggs to combating these toxic compounds. This affects the sustainability and profitability of the entire value chain.

In the US, losses in 2021 due to a single **mycotoxin** in **corn** and **wheat** were estimated at up to

USD 5 billion

Mycotoxins can have diverse biological modes of action within an animal organism. Even a low level of contamination can negatively influence the health status of livestock. The presence of more than one mycotoxin in a feed source multiplies the damage that these compounds may cause. These include impairment of liver functionality, impairment of gut functionality (leading to reduced absorption of nutrients), and a consequent increase in susceptibility to disease. The presence of mycotoxins can also trigger fertility problems (in animals of both sexes), reduce uniformity within herds and flocks, and impair the efficacy of vaccines.

Exposure to mycotoxins poses a threat not just to animals, but to humans, too. **Consumption of mycotoxins** found in a wide range of plant- or animal-sourced foodstuffs can induce conditions such as liver, kidney and esophageal cancer, gastrointestinal disturbances, and irritation of the skin.



~80% of **swine diseases**

are related to the mismanagement of feed quality, reproduction, housing conditions and biosecurity

A constant concern

Worldwide institutions such as the European Food Safety Authority (EFSA) and the World Health Organization (WHO) recognize mycotoxins as **harmful contaminants** for both animals and humans, recommending that they should be monitored and prevented in feed and food alike.

The warming of the climate encourages the development of mycotoxins. The combination of high temperatures and rainfall encourages the occurrence of fungi, making the presence of mycotoxins in grains and raw materials a constant concern.

Our solutions

For more than three decades, **Biomin**, acquired as part of our acquisition of Erber in 2020, has had a leading position in the **biotransformation** of various mycotoxins – i.e., the process of rendering them biologically harmless. Biomin provides high-quality global services to analyze mycotoxins, tools to interpret the risk of mycotoxin exposure, and solutions to mitigate losses in the food value chain caused by mycotoxins.

Mycofix® is the DSM brand for **Mycotoxin Risk Management solutions**. The result of decades of specialist research and development, the Mycofix® product line offers innovative solutions to better **protect farm animals** from mycotoxins and help support **sustainable business for livestock farmers**. The feed additive ZENzyme®, which targets the mycotoxin zearalenone, is one example from this portfolio.

Zearalenone is a mycotoxin that occurs in more than 60% of feed. It mainly affects the reproductive system, impairing the fertility of breeder animals and their offspring. In 2021, we launched **ZENzyme®**, the first and only purified enzyme that degrades zearalenone rapidly and completely. This innovation is the result of many years of research in the field of mycotoxin enzymology and guarantees the complete biotransformation of zearalenone into non-toxic compounds. The use of ZENzyme® ensures **protection against zearalenone** and enables breeding animals, as well as their offspring, to achieve their full genetic potential.

Our impact

The **Mycofix®** portfolio from DSM represents the most state-of-the-art solution for protecting the health of livestock by deactivating mycotoxins that contaminate feed. The safety and efficacy of Mycofix® are proven by seven EU authorizations for substances that deactivate mycotoxins.

Stronger together

Vestjyllands Andel Pig Feed Cooperative is the third largest feed mill in Denmark, producing 500,000 tons of feed and premix per year. Vestjyllands Andel has been using Mycofix® Plus since 2016, starting with an order of 10 tons and increasing this volume to 144 tons by the end of 2021.

"Using Mycofix® Plus in the feed all year round helps swine farmers to avoid health issues caused by the presence of mycotoxins."

Karsten Jørgensen, head of Krogsgaard Svineproduktion at Vestjyllands Andel Pig Feed Cooperative

How we support the SDGs

Our mycotoxin solutions support the attainment of UN Sustainable Development Goals 2, 3 and 12.

SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

By combating the spread of mycotoxins in a warming climate, Mycofix® enables the production of more animal protein with the same resources. It therefore contributes to the achievement of SDG 2.4, "By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality."

SDG 3: Ensure healthy lives and promote well-being for all at all ages

Mycofix® helps reduce the presence of harmful mycotoxins in animal-source foods consumed by humans, thus helping to ensure healthy lives and promote well-being.

SDG 12: Ensure sustainable consumption and production patterns

Mycofix® contributes to sustainable consumption patterns by reducing food losses, supporting specifically the achievement of SDG 12.3, "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."

Combating hidden hunger through rice fortification

Closing the micronutrient gap for 800 million people

Through our **partnerships** in the public and private sectors, we work to create affordable, aspirational and accessible **nutritional solutions** that can help keep the world's growing population healthy.

Two billion people worldwide currently suffer from a **deficiency of key micronutrients**, a condition known as hidden hunger. Its effects can be devastating, leading to mental impairment, poor health (including stunting and wasting), low productivity, and even death. Its adverse effects on child health and survival are particularly acute, resulting in serious physical and cognitive consequences. Even mild to moderate deficiencies can affect a person's well-being and development. In addition to affecting human health, hidden hunger can curtail socioeconomic development, particularly in low- and middle-income countries.

~2 billion people
worldwide suffer from **hidden hunger**, a **deficiency** in essential **micronutrients**

As part of our new strategic Food System Commitments, we have undertaken to enable the closure of this micronutrient gap for 800 million people currently suffering from hidden hunger by 2030. The fortification of rice with essential micronutrients is an element in this commitment. It is one of the most effective, safe and cost-efficient solutions to address micronutrient deficiencies.

The rationale for fortifying rice

Rice is one of the most commonly eaten foods in the world, providing more than 20% of global calorie intake. White rice, which is milled prior to cooking, is significantly more popular than brown or unmilled rice. Approximately 480 million metric tons of milled rice is produced annually worldwide. As a staple food for over half the global population, rice offers a good and affordable source of energy. However, rice itself does not contain significant amounts of most micronutrients. Additionally, the milling process that produces the commonly-consumed white rice removes both the fat- and nutrient-rich bran layers from the rice ears, further reducing the rice grains' nutritional value. White rice is therefore a relatively nutritionally poor staple.

The process for fortifying rice

Rice can be made more nutritious by adding vitamins, minerals and other micronutrients to replenish nutrient content lost in the milling process and reinforce its nutritional value. Fortified rice can be adapted to meet specific nutritional needs and can be made to resemble different rice varieties.

There are various methods to make rice more nutritious post-harvest, and DSM has developed a robust proprietary technology in the form of hot or warm extrusion. This technology has been shown by numerous clinical studies to be effective in helping to combat micronutrient deficiencies.

Broken rice grains are ground into rice flour, then mixed with water and the required nutrients to produce a dough. The fortified dough is then passed through an extruder to produce the fortified kernels, which are then blended with regular rice, typically at a dosage rate of approximately 1%. The temperature at which the extrusion takes place determines whether it is described as hot or warm extrusion and has an influence on the firmness of the produced fortified kernels.

In **Africa** and **Asia**, the annual economic cost of malnutrition from lost productivity and economic growth is as high as

11% of **Gross Domestic Product** each year

Our solutions

DSM is involved at every stage of the rice fortification value chain. Our activities range from engaging in joint advocacy efforts together with partners and customers to encourage demand for fortified rice, through product innovation and development, all the way to the provision of micronutrient fortificants and technical assistance.

A significant body of evidence demonstrates the role of rice fortification in reducing nutrient deficiencies and deficiency-related diseases (e.g., anemia), improving cognition, and supporting immune function. We help private- and public-sector allies – including brand owners, governments, non-governmental organizations (NGOs), UN agencies, donors and employers – to develop and integrate nutritional interventions that help improve nutrition and strengthen immunity for at-risk populations.

Extruded fortified rice kernels are produced in **rice-producing and -exporting countries** such as India, Thailand and Costa Rica. These vitamin-enriched rice grains are generally then blended into unfortified, locally produced rice. We also support **local rice millers** with our expertise in formulation, blending and quality control.

Fortified rice can now be found in many parts of the world. It features in **public health programs** such as school meals for children, social safety nets and meals for workers, and is also available via **commercial retail outlets**.

Our impact

The DSM-WFP partnership has invested in activities to expand the production, availability and consumption of fortified rice in **20 countries**, reaching over **15 million people annually** through social safety nets (SSNs).

More than **45 metric tons** of **fortified rice** to date have been distributed through in-kind donations. The DSM-WFP partnership has additionally helped more than **70 small and medium-sized enterprises** (SMEs) in Bangladesh to build their capacity for producing fortified rice, directly supporting local food producers and processors. As a result, more than **7 million people** in Bangladesh now have access to fortified rice via social safety nets.

Stronger together

Our partnership with the **United Nations World Food Programme** (WFP), one of several current partnerships in the field of food fortification, operates under the banner 'Improving Nutrition, Improving Lives'. It aims to leverage multiple channels to reach as many WFP beneficiaries and consumers as possible with affordable, high-quality fortified rice over the coming years. These channels include WFP **direct food distributions** and **social protection programs** such as school feeding and government food distribution schemes.

The **DSM-WFP partnership** draws on our respective organizations' complementary competences and networks, bringing us closer to our shared goal of ending hidden hunger and allowing us to achieve more together through co-creation than we would be able to do alone. As **DSM**, we bring our scientific expertise and innovation capacity in developing nutrition solutions and products, as well as our financial resources and private-sector network to the partnership. **WFP** brings its extensive operational presence, its deep understanding of local contexts, its national and local networks, and its focus on vulnerable populations in countries where vitamin and mineral deficiencies are most prevalent.

Ever since its inception in 2007, the DSM-WFP partnership has made significant contributions to ending malnutrition worldwide. Scaling up rice fortification has been a key focus of the partnership since 2016.

Disclaimer: WFP does not endorse any product or service.

"The damaging effects of the COVID-19 pandemic have made the need for such public health interventions greater than ever."

Allison Oman Lawi, Deputy Director Nutrition Division, United Nations World Food Programme

How we support the SDGs

Our partnership with the World Food Programme in the field of rice fortification supports the attainment of UN Sustainable Development Goal 2.

SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Our partnership makes an important contribution to helping ensure that all people, in particular the poor and people in vulnerable situations, including infants, have access to safe, nutritious and sufficient food all year round (SDG Target 2.1.). It also contributes to achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and addresses the nutritional needs of adolescent girls, pregnant and lactating women and older persons (SDG Target 2.2.).

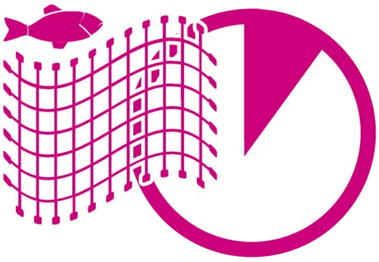
Enabling a circular economy

We are enabling our customers to make **planet-positive choices** by increasingly designing bio-based and circular high-performance materials. One example is Schneider Electric's use of our recycled-based polymer **Akulon® RePurposed** in their new range of **Merten System M** switches for smart, sustainable homes.

A world-wide problem

Society's **consumption of the world's resources** has created a series of interconnected environmental challenges. These include climate change, natural resource depletion, and pollution in air, earth, and water. Today, only 8.6% of the 100 billion tons of minerals, fossil fuels, metals, and biomass that enter the economy are reused. Should the global population reach 9.6 billion by 2050, the equivalent of almost three planets could be required to provide the natural resources needed to sustain current lifestyles.

For producers of high-performance materials, **circularity** presents both challenges and opportunities. Companies in these industries that can navigate growing consumer demand for circular products and maintain compliance with increasingly stringent legislation can generate both economic and social value.



Abandoned fishing equipment makes up
~10%
of the **plastic waste** in the world's oceans

As creators of some of the world's most advanced high-performance polymers, we are well positioned to drive circularity across many markets and end-products. Our extensive track record in materials science, world-class R&D facilities, and a global network of scientists means we can have a significant positive impact. As we are often active in the earlier stages of commercial value chains, we can help define and advocate which raw materials should enter the economy, across a wide range of industries. Enabling the use of recycled waste or bio-based materials as raw materials creates many new possibilities for ourselves and our customers.

Our solutions
To help our customers to embrace the opportunities intrinsic in manufacturing circular products, we live by our SimplyCircular™ agenda, which comprises three key pillars:

Sustainable sourcing. To minimize the use of fossil-based resources, we are transitioning to recycled- and bio-based sourcing solutions founded on four feedstock systems: bio-based, biomass (waste) mass-balanced, mechanically recycled, and chemically recycled mass-balanced.

Enabling circularity for our customers. We are creating bio- and/or recycled-based alternatives for our entire DSM Engineering Materials portfolio. In 2021, this was already realized for Akulon®, Arnitel®, Stanyl® and EcoPaXX®, for which we introduced mass-balanced alternatives. These alternatives have exactly the same functionality as products in our conventional portfolio, do not require requalification, and are certified by third parties. Besides these mass-balanced solutions, we already had bio-based and recycled-based solutions in our portfolio. EcoPaXX® (PA410) is a bio-based, high-performance polyamide with the lowest carbon footprint among common polyamides. It can be used for a wide range of applications, offering customers a low carbon footprint and a sustainable alternative to fossil-based materials. Discarded fishing nets are used as a source for producing our recycled-based polyamide Akulon® RePurposed. We thereby contribute to addressing the global issue of ocean pollution from plastics and actually re-use plastic waste as a valuable feedstock. With Akulon® RePurposed, we offer our customers a recycled-based solution that comes with a lower carbon footprint and drives circularity.

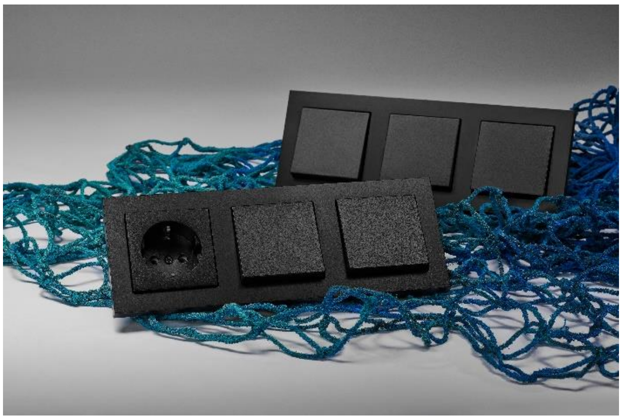
Simple solutions. Our easy-to-use solutions include: our Plastics Finder tool; application and product development support; certified transparency and traceability; carbon footprint life cycle assessment (LCA) for every product; and educational support on feedstock systems.

Our impact
In line with our SimplyCircular™ agenda, we have already delivered a series of tangible proof points that enable a circular economy and minimize waste. These include:

- joint development of the world's first recycled packaging for gluten-free bread for gluten-free bakery company Dr. Schär
- our partnership with Sympatex Technologies to commercialize bio-based mass-balanced Arnitel® to manufacture waterproof, windproof and breathable membranes for sports applications. The end-product contains more than 25% bio-based content by weight

Stronger together

We are committed to making these solutions science-based, sustainable, and scalable, and ensuring that they benefit customers, end-users, and society at large. A case in point is our collaboration with Schneider Electric, the global leader in the digital transformation of energy management and automation.



Together with DSM, Schneider Electric has developed a new range of Merten System M electric products such as switches, sockets and frames and ELKO Plus switches – part of a new range designed for smart, sustainable homes. The switches are the first in the world to be made of recycled ocean plastic, thanks to their use of Akulon® RePurposed – a product made from abandoned or 'ghost' polyamide fishing nets collected from the Indian Ocean and the Arabian Sea. The carbon footprint of this new Akulon® RePurposed compound is 82% lower than the traditional Nylon 6 used in similar products.

YiFu Qi, Executive Vice-President of Global Home and Distribution, Schneider Electric: "The collaboration between DSM and Schneider Electric is a world first and a game-changer for the market. The challenge of weaning the world from our addiction to plastic waste might seem insurmountable. But change is possible. The Merten System M recycled ocean material range is just the first of a pipeline of sustainable solutions from Schneider Electric designed to help the company's customers achieve global net-zero goals. Using the right materials for the job from the outset is central to creating a circular economy."

"The collaboration between DSM and Schneider Electric is a world first and a game changer for the market."

YiFu Qi, Executive Vice President of Global Home and Distribution, Schneider

How we support the SDGs

By enabling customers to make planet-positive choices, we are contributing to the UN Sustainable Development Goals 12 and 13.

SDG 12: Ensure sustainable consumption and production patterns

By making use of bio- and recycled-based feedstocks, we are supporting the transition from a linear, fossil-based economy to a circular economy. This not only relieves the pressure on fossil feedstocks but also minimizes waste by re-using it again as a valuable feedstock.

SDG 13: Take urgent action to combat climate change and its impacts

By reducing the carbon footprint of our products, we enable our customers to reduce the carbon footprint (CFP) of their materials significantly, making a positive contribution to combat climate change. In addition, our bio- and recycled-based solutions offer an opportunity to reduce CFP even further.

Stakeholders

Our purpose can only be realized by working with our stakeholders. Through empowering our employees, engaging with our customers and suppliers, and with the support of our investors, we will create a stronger legacy and a brighter future for generations to come. We discuss topics that are relevant to our operations and our impact on society regularly with our stakeholders. These conversations shape how we define and execute our strategy, including risk management, materiality, and new business opportunities.

Our stakeholders

Employees

Our people are our most important asset, and our employees represent more than 110 nationalities[1], working at more than 250 sites and offices in 55 countries worldwide. The safety, health and well-being of our people is our highest priority and we aspire to provide an incident- and injury-free working environment for everyone, including our contractors. We continued to invest in our approach on human rights, employee engagement and Inclusion & diversity, while we worked on the execution of our People & Organization (P&O) strategy. For information on how we engage with our employees, see People.

Customers

Our customers are key stakeholders. They drive our business and through our collaborations, we enable solutions that help solve some of the world's biggest problems. For information on our business and how we engage with our customers, see Nutrition, Materials and Innovation. For information on our Net Promotor Score, see Customers.

Investors

Capital providers play a significant role in the success and prosperity of our company. They support us in our pursuit of a long-term-oriented strategy which aims to continually create value for shareholders while offering a low-risk environment for debt holders. For more information on how we communicate with investors, see Investors and elsewhere in this Report.

Suppliers

Our supply chain consists of more than 38,000 suppliers. Our suppliers are important partners for achieving our purpose, and we work closely with them through our Sustainable Procurement Program, comprising our supplier development and evaluation program, our scope 2 program, our scope 3 program and the procurement of renewable fuels. For more information on how we work with our suppliers, see Suppliers.

Society

We engage with society at multiple levels — from local community initiatives to collaborations with universities and research institutes. We work with NGOs and civil society toward solutions for societal issues, and advocate with governments and society on important issues relating to the Sustainable Development Goals and the Paris Agreement. We also engage in philanthropic and sponsorship activities comprising the in-kind contributions of our employee's time and expertise, as well as to the yearly amount of approximately €6 million for the coming period. As outlined in our Code of Business Conduct, we do not make political donations. For more information on how we engage with these stakeholders, see Society.

"We continue our support of the UN Global Compact and remain committed to reporting our progress within this framework via this Report."

Geraldine Matchett and Dimitri de Vreeze, Co-CEOs, Royal DSM

1 All data presented in Stakeholders are subject to the Non-financial reporting policy.

How we create value for our stakeholders

Our Value Creation model illustrates our long-term value creation and is based on the Value creation and Capitals concepts of the Integrated Reporting <IR> framework and gives an overview of how we create value for our stakeholders based on six capital inputs: Human capital, Societal & relationship capital, Natural capital, Financial capital, Intellectual capital and Manufactured capital. We cluster these six capitals into **People, Planet and Profit.**

We transform our capital inputs into value and positive impact through taking advantage of the opportunities and minimizing the risks around the relevant megatrends in our business. A key part of our strategy, aside from our financial targets, is to continuously strengthen our commitment to sustainability. Through our business model, business strategy and purpose, we aim to have a positive impact for People, Planet and Profit, and deliver our share toward the Sustainable Development Goals (SDGs).

More information on our Value Creation model and the definitions of the six capitals, are provided in Explanation of some concepts and ratios.

Capital Inputs[2]

People

Our employees represent more than 110 nationalities in 55 countries. We engage with our stakeholders and partners to achieve our Purpose.

21,358

Employees

30:70

Gender ratio (f:m)

Inputs:

- Employees
- Training & development
- Stakeholder engagement & Public-private partnerships
- Philanthropy & sponsorship

Planet

We consume raw materials (including renewable and recyclable materials), energy from renewable and non-renewable sources and water.

21.4

Primary energy use (PJ)

26

Water withdrawal (non-once-through cooling, x million m^3)

Inputs:

- Raw materials (including bio-based and recycled-based materials)
- Energy (including renewable sources)
- Water

Profit

We employ shareholder equity and borrowings to invest in partnerships and innovation. We purchase goods and services that are used in our manufacturing assets.

€9,318

Shareholders' equity (million)

€3,093

Borrowings (million)

Inputs:

- Shareholders' equity
- Borrowings
- Partnerships
- Scientific environment and academic infrastructure
- Purchased goods & services
- Manufacturing footprint

Our Business Model

We are a **purpose-led, performance-driven organization** developing innovative solutions to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. In 2021, our organizational and operating model was made up of market-facing Business Groups (organized into clusters) focused on the primary business functions. The Business Groups received services from global support and functional excellence departments and were supported by the regional organizations. Our **Brighter Living Solutions** — solutions that are better than the mainstream reference solution for people and/or the planet — account for 64% of our net sales.

2 All data presented in the People and Planet columns are subject to the Non-financial reporting policy.

Percentage of net sales by end-use market (continuing operations)

12%
Food & Beverage

12%
Dietary Supplements

5%
Early Life Nutrition

5%
Personal Care

36%
Animal Nutrition

7%
Automotive / Transport

5%
Electrical / Electronics

6%
Medical Pharma

12%
Other

Value Outcomes[3]

People

The safety of our employees is our highest priority. Investments in training and career development provides value for employees and stakeholders. We aspire to pay a living wage to all our employees. Our products support improved nutrition and a more sustainable food system.

0.22

Frequency Index recordables

76%

Employee engagement

Outcomes:

- Safety & health
- Brighter Living Solutions
- Engaged workforce
- Skills & employability
- Employee benefits
- Improved nutrition

Planet

We work to reduce our environmental footprint and support the reduction of the footprints of our value chain partners. Our products enable the transition to a more circular economy and contain safer ingredients and materials.

12.9

Scope 1 + 2 + 3 emissions (million tons CO_2eq)

72%

Purchased renewable electricity

Outcomes:

- Reduced environmental footprint
- Brighter Living Solutions
- Enabling the transition to a more circular economy
- Safer ingredients & materials

Profit

We aim to deliver a strong financial performance, enabling us to re-invest in our asset base, fund our purpose-driven innovations, pay stable (preferably rising) dividends and provide good returns to our bondholders. Our tax policy follows the letter and spirit of the law.

€1,814

Adjusted EBITDA from continuing operations (million)

€949

Adjusted net operating free cash flow from continuing operations (million)

Outcomes:

- Financial performance (Adjusted EBITDA and Adjusted net operating free cash flow)
- Interest payments, capital gains / losses and return on investment
- Total Shareholder Return, including dividend
- Contribution to civil society via wages, taxes and social security including pensions
- Contribution to business success for customers and suppliers

3 All data presented in the People and Planet columns are subject to the Non-financial reporting policy.

Impact and SDGs

People

- Better fed and healthier individuals and communities
- More prosperous and resilient employees for our company and in our value chain

Planet

- More sustainable use of resources, for our company and in our value chain
- Products that contribute to safer, healthier working & living environments

Profit

- We are purpose-led, performance-driven through science-based sustainable solutions
- Sustainable returns to investors
- Positive contributions to economic growth in the countries and markets in which we operate

Materiality

In order to assess material topics that are both of interest to society and have impact on our businesses, we annually update our materiality analysis. In 2021, we conducted a full materiality analysis due to the divestment of Resins & Functional Materials and associated businesses, and the accelerated strategic journey as announced in September 2021.

Our update in 2021 used the Materiality Matrix 2020 as its point of departure. A list of potential material topics was defined using desk research into third-party publications, peer analysis, interviews with DSM business managers, and internal documentation including the Corporate Risk Assessment 2020 and food systems reports. Feedback was received on the proposed topics through an internal employee workshop with representatives from our Business Groups and functions, and in an external stakeholder dialogue session with representatives from our customers, suppliers, peers, and investors. The resulting matrix was compared with the Corporate Risk Assessment to make sure all relevant topics were captured from a materiality and/or risk perspective. The matrix was reviewed and validated by the Executive Committee and finally, approved by the Managing Board.

Changes in 2021

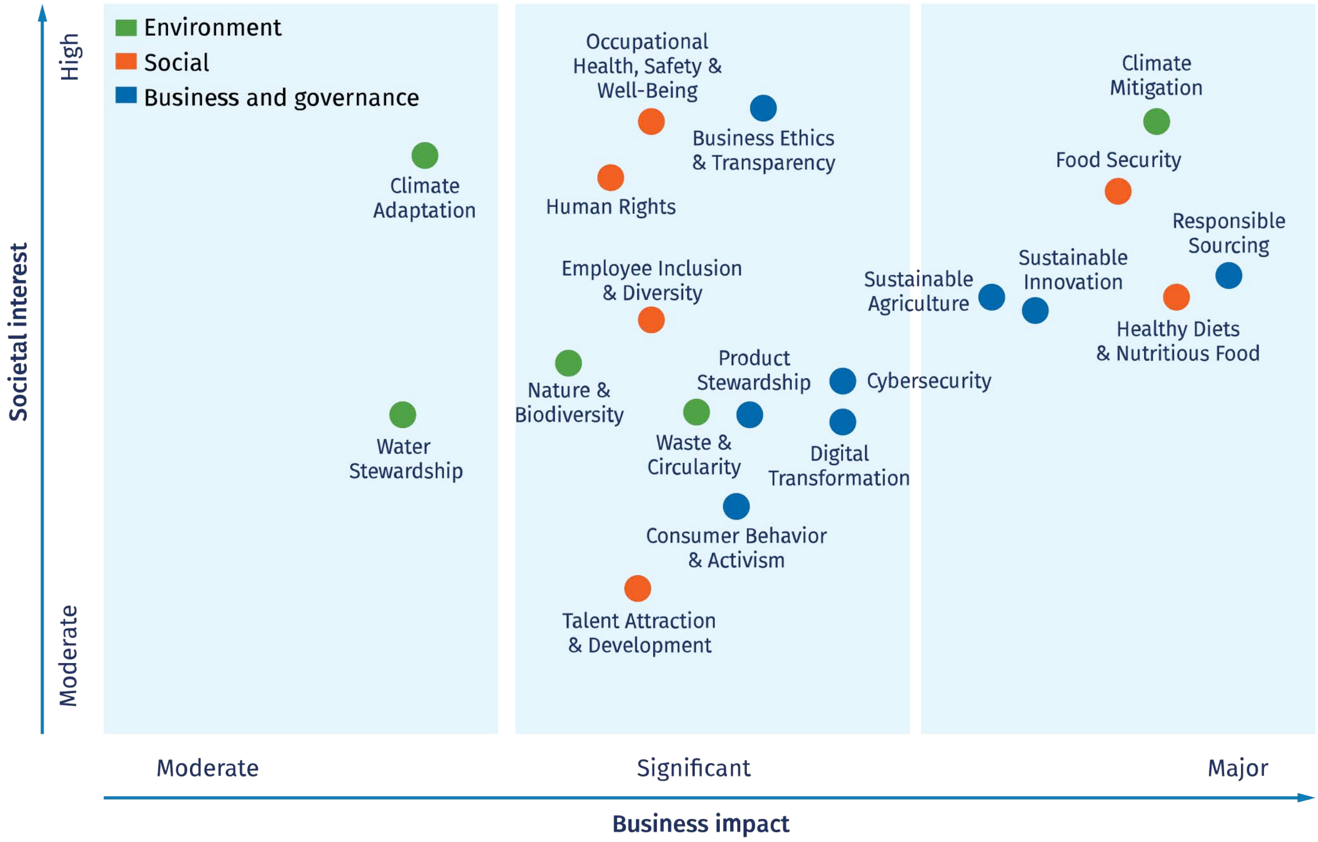
The 2021 matrix is based on the 'double materiality' concept – addressing both the impact of the company on the topic and the impact of the topic on the company.

The matrix has changed to reflect our Health, Nutrition & Bioscience strategy, with an increased focus on nutrition- and food-systems-related topics. This has resulted in the renaming of a number of topics. Two topics (Geopolitical shifts & trade dynamics' and 'Advocacy, engagement & partnering') have been moved into other material topics. One new topic has been added – 'Responsible Sourcing'. The focus domains have been replaced with the underlying topics:

- 'Climate & Energy' was replaced by 'Carbon Footprint Reduction' and 'Climate Adaptation'
- 'Nutrition & Health' was replaced by 'Food Security', 'Sustainable Agriculture' and 'Healthy Diets & Nutritious Food'
- 'Resources & Circularity' was replaced by 'Waste & Circularity' and aspects of the existing topic of 'Nature & Biodiversity'

For more information on materiality, see Management approach for material topics.

Materiality matrix 2021



Collaborative platforms and networks

We collaborate with like-minded organizations through platforms and networks that contribute to our purpose of creating brighter lives for all. These collaborations are chosen to amplify and accelerate our advocacy efforts in support of a transition to more sustainable economic models on topics that align to our Focus Domains of Nutrition & Health, Climate & Energy, and Resources & Circularity. Collaborative platforms and networks such as these can help formulate new solutions, and measurement and performance methods, as well as roadmaps for business contributions toward achieving the Sustainable Development Goals (SDGs). In this section, we describe some of the most significant initiatives. Due to the ongoing impact of COVID-19, many of the major events of these platforms and networks, such as the WBCSD Council meeting and the WEF Annual Meeting, were postponed or went completely virtual.

Supporting our stakeholders during COVID-19

In 2021, we continued to provide support and resources to internal and external stakeholders during the COVID-19 pandemic. Our in-house initiatives, including our 'It's OK' campaign and #optimizeyourimmunity, are described in Health & well-being.

APAC
In Singapore, we continued to support the Migrant Workers' Centre, an NGO whose mission is to champion fair employment. In Japan, we supported WFP's COVID-19 pandemic emergency support in place of the 'Walk the World' event that was canceled due to the pandemic. In India, in partnership with Medtronic, donations of medical equipment, such as ventilators, were made to local hospitals. In the aftermath of a flood, and a corresponding increase in COVID-19 cases in Henan province (China), we provided support to the affected communities.

Europe

In the Netherlands, our joint venture with VDL Group, Dutch PPE Solutions, began large-scale production of **filtering material** made from bio-based feedstock in the form of used cooking oil. The plant provides the first fully **locally-produced face masks** in the region.

Latin America

We provided support to the communities located around DSM facilities with donations of **food, cleaning and personal hygiene products and warm clothing**. We also assisted institutions that offer assistance to **socially vulnerable families**, children and teenagers, as well as homes for the elderly. In partnership with Holos, we supported conversations with **mental health professionals**, and in partnership with the **Secretary of Education** and **State Schools of Brazil**, we hosted online talks with public school students addressing the difficulties stemming from the pandemic.

North America

We continued to donate **immunity boosting nutritional products** as well as N95 masks to **front line health care workers** and **first responders** in the communities around our facilities. We also continued to optimize the immunity of our own colleagues through the continued distribution of nutritional products and offered mental and emotional health support to them and their families.

Cross-domain initiatives

World Economic Forum (WEF)

We are a strategic partner of WEF. We actively participated in its virtual events throughout 2021 as well as the Forum's physical events during **COP26 in Glasgow**. In 2021, our Co-CEO Geraldine Matchett joined the **International Business Council** (IBC). She remained a member of the Steering Committee of the **Consumer Governors** and the **Food Security Stewards**. Our Co-CEO Dimitri de Vreeze is a member of the Steering Committee of the **Chemical Governors** and will in 2022 take over the IBC membership from Ms. Matchett. Both spoke at various virtual events of the Forum.

We actively contributed to several initiatives in 2021, including the **Alliance of CEO Climate Leaders**, the **CEO Action Group for the European Green Deal**, the **Food Innovation Hub Europe,** and we participated in a number of meetings with public figures organized by WEF.

The SDG Tent

As WEF was not able to organize its Annual Meeting due to the COVID-19 pandemic, we joined forces with partners including Salesforce, Procter & Gamble and Yara to continue the **SDG Tent in online format**, a venue for discussing business engagement for achieving the SDGs Several successful events were hosted in the virtual SDG Tent, such as *Tackling the Triple Threat of Food Security, Economic, and Climate Crisis* and *Why Bold Food Systems Action is the Best Vaccine Against Chaos*.

World Business Council for Sustainable Development (WBCSD)

We are a member of WBCSD and participate in various working groups and coalitions. Our Co-CEO Geraldine Matchett is member of **WBCSD's Executive Committee** and is Commissioner in WBCSD's **Business Commission to Tackle Inequality** (BCTI). In addition to the areas mentioned below, we are also active within the **WBCSD Climate Policy Working Group** and the Chemicals group (including the shared development of a **Portfolio Sustainability Assessment** methodology).

Food & Nature

DSM is Board Member of the **Food & Nature Program** and a founding member of the **Food Reform for Sustainability and Health (FReSH) project**, with the aim to drive food system to support healthy people on a healthy planet. In 2021, we helped to shape the 'Business Declaration on Food System Transformation', that was presented by WBCSD at the UN Food System Summit. In December at the global **Tokyo Nutrition for Growth Summit**, WBCSD launched the 'Responsible Business Pledge' that sets out the areas for quantified business commitments for better nutrition.

Circular Economy

Factor10 is WBCSD's Circular Economy program that convenes more than 30 global companies to co-develop solutions to accelerate the **transition toward the circular economy**. In 2021, we continued to co-lead the **circular metrics workstream**, developing the circular transition framework enhanced with new metrics for water, financial performance, and a bioeconomy guidance. Factor10 also launched version 2.0 of the Circular Transition Indicators and the accompanying online tool, supporting companies in taking concrete actions toward their circularity ambitions.

Redefining Value

Redefining Value is WBCSD's program supporting external disclosure and decision-making. In 2021, we collaborated on the guide 'Future-Proof Business'. We participated in the Shaping Sustainable Finance Policy Working Group, with a particular focus on the engagements around the EU Sustainable Finance Agenda and the work of EFRAG related to developing European Sustainability Reporting Standards, the IFRS Foundation establishment of the ISSB, and the alignment between the two organizations.

Ban-Ki Moon Centre

The Ban Ki-moon Centre for Global Citizens (BKMC) is a Quasi-International Organization located in Vienna, Austria, established in January 2018. The Centre is co-chaired by Ban Ki-moon, 8th Secretary-General of the UN, and by Heinz Fischer 11th President of the Republic of Austria. Its mission is to foster leadership for the implementation of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement by inspiring current decision makers and empowering the next generation of leaders. Mr. de Vreeze is on the Board of BKMC. We have supported the BKMC's projects in the fields relevant to our strategy in the years since it was established.

The European Chemical Industry Council (Cefic)

Cefic represents the voice of large, medium and small chemical companies across Europe. Mr. de Vreeze represents us in Cefic's Executive Committee and Board and chairs Cefic's Sustainability Forum, through which he focuses on the acceleration of Cefic's sustainability journeys. In 2021, we actively contributed to various workstreams of the Sustainability Forum, focusing on the development of indicators driving and monitoring the industry's progress towards the SDGs in general and the EU Green Deal in particular, and of a concept definition for innovation that is Safe and sustainable-by-design. Our experts are also member of various other internal Cefic groups and, for example, actively contributed to shaping Cefic's view on the EU Sustainable Finance strategy.

Accounting for Sustainability (A4S)

A4S brings together leading CFOs to help embed the management of environmental and societal issues into business processes and strategy, particularly through the finance function. Ms. Matchett is a signatory to the A4S CFO Statement of Support for the TCFD recommendations and the A4S CFO net-zero Statement of Support.

In 2021, we participated in various virtual events and meetings. Toward the end of the year, two of our senior finance leaders graduated from the A4S Academy, a program which provides an opportunity to senior finance leaders to broaden their perspective on sustainability, the impact it has on business, and how companies can contribute. Two new finance leaders have joined the next cohort. We contributed to the guide on 'Enhancing Investor Engagement' as well as a roundtable accompanying this publication, and published a case study on managing ESG-related risks and opportunities.

Dutch Sustainable Growth Coalition (DSGC)

The DSGC is a CEO-led coalition of eight Dutch multinational corporations which aims to drive sustainable growth business models that combine economic profitability with environmental and social progress and thus contribute to the achievement of the SDGs. To accelerate this transition in the Netherlands and abroad, the coalition wants to lead the way and pursues a strategy of Share - Shape - Activate.

In 2021, the DSGC published an open letter during the Dutch cabinet formation discussions emphasizing the importance of innovation and sustainability for a better future and implementing the SDGs. In November, the *Generational Leadership in Action* event was organized, involving the participation of students as well as CEOs. The students were challenged to work on real-life case challenges from the DSGC companies.

Climate & Energy initiatives

Carbon Pricing Leadership Coalition (CPLC)

We continue to drive carbon pricing and share our experiences on the topic through the Carbon Pricing Leadership Coalition. The CPLC's long-term objective is for **effective carbon pricing** to be applied throughout the global economy. In addition to facilitating **leadership dialogues**, the CPLC and its partner organizations are also mobilizing business support to put an **internal price on carbon**. We apply an internal carbon price of €100 per ton of CO_2eq when reviewing large investments and acquisitions, and we include this in internal management reporting by our Business Groups.

RE100

Our engagement with RE100, the world's leading campaign to scale up the **corporate sourcing of renewable power**, continued throughout 2021. In addition to peer exchange to advance the uptake of **renewable electricity in China**, we participated in several learning events, conferences and advocacy opportunities in Europe, the US and China.

We Mean Business

We Mean Business activates hundreds of companies and investors to commit to **low-carbon initiatives**. In 2021, we worked on several advocacy and communications activities in the context of COP26 that called on governments to urgently match their ambition and policies to limit global temperature rise to 1.5°C above pre-industrial levels, and demonstrate the **private sector's support** for these efforts, along with the enabling solutions developed to date.

Global Center and Commission on Adaptation (GCA)

We continued our partnership with the GCA, particularly by lending our expertise in **food security**, and helping **smallholder farmers** manage risks and climate shocks through Africa Improved Foods (AIF), but also by mobilizing the private sector to adopt an integrated strategy to address climate adaptation alongside climate mitigation efforts.

Taskforce on Scaling up Voluntary Carbon Markets

We are a member of the Taskforce on Scaling up Voluntary Carbon Markets, a private sector-led initiative working to improve the credibility and functionality of an **effective and efficient voluntary carbon market** to help meet the goals of the Paris Agreement. The taskforce is providing insights and recommended actions for the most pressing pain-points facing voluntary carbon markets.

Science Based Targets Initiative: Net-Zero Expert Advisory Group

We joined the Science Based Targets Initiative Net-Zero Standard Expert Advisory Group (EAG) in 2020. This group is at the heart of the development process for a standard to guide the formulation and assessment of **science-based net-zero targets** in the corporate sector. These targets are consistent with action needed to limit warming to 1.5°C while **minimizing trade-offs** with other SDGs. The standard was launched in October 2021, and the work to refine it will continue with the support of the EAG throughout 2022.

Resources & Circularity initiatives

Platform for Accelerating the Circular Economy (PACE)

PACE is part of **the World Resource Institute's (WRI) Center for Sustainable Business**. PACE is a public-private collaboration platform that aims to catalyze global leadership from business, government, and civil society to accelerate the transition to a circular economy. Mr. Dimitri de Vreeze represents DSM in the **Global Leadership Group**, which includes more than 80 CEOs, ministers and heads of international organizations. PACE catalyzes **new projects** and **supports partner-led projects** to scale up circular economy action on plastics, electronics and capital equipment, food and agriculture, and textiles and fashion. Other thematic touch points are Finance, Metrics and Innovation. PACE is leading the mapping and tracking process for initiatives, including DSM initiatives, already in place that tackle specific Calls to Action.

Ellen MacArthur Foundation (EMF)

The EMF is an organization which supports the transition toward the circular economy. It does this by developing and **promoting the concept of a circular economy**, working with business, policy makers and academics. In 2021, access to the Foundation's Network Workshops and online Annual Summit was available to our employees. We participated in the Ellen MacArthur Foundation's **From Linear to Circular program**, aimed at postgraduate students and professionals at the start of their circular economy career. It includes webinars, networking sessions, a vibrant online community, and collaborative team projects developed by the Foundation and members of the Ellen MacArthur Network. We also endorsed the Ellen MacArthur Foundation biodiversity paper and provided input to the Big Food Redesign campaign supported by communications activity across the Foundation's channels.

Circle Economy

Circle Economy is a not-for-profit organization that works with a global community of businesses, cities and governments to accelerate the transition to the circular economy through practical and scalable insights. In 2021, we were members of the Circularity Gap Report Roundtable, which developed the 4th Circularity Gap Report. The Gap Report provides a framework and fact base to measure and monitor progress in bridging the global circularity gap. The Gap Report Initiative will continue to bring together global, cross-sector stakeholders from academia, businesses, NGOs and governments to input, evaluate and endorse the annual Gap Report.

Champions 12.3

Our Co-CEO Ms. Geraldine Matchett is a member of Champions 12.3, a coalition of executives from governments, businesses, international organizations, research institutions, farmer groups, and civil society dedicated to inspiring ambition, mobilizing action, and accelerating progress toward achieving SDG Target 12.3 by 2030. An important and promising angle addresses climate action through value chain collaboration. In 2021, we presented, together with Wageningen University, actions against food waste to reduce greenhouse gas emission throughout the dairy value chain.

Nutrition & Health initiatives

The DSM Malnutrition Partnerships and Programs (MPP) team addresses malnutrition through public-private partnerships, while strengthening our consumer-oriented new business model 'Programs in Emerging Markets'. Through our partnerships, we learn about effectively creating impact for vulnerable and last-mile population groups. These learnings drive our innovation efforts to create new solutions that address the needs of consumers in emerging and previously underserved markets. In addition, MPP offers opportunities for talent development through exchange programs. In 2021, 11 DSM employees worked as long-term secondees or on a (part-time, virtual) consultancy project for our partners, benefiting from unique opportunities for personal and professional development.

UN World Food Programme (WFP)

The DSM-WFP partnership 'Improving Nutrition, Improving Lives', in place since 2007, aims to improve the nutritional value of the food that WFP distributes. Together, we reached 30 million direct beneficiaries in 2020 (the most recent reporting period) with food improved by the DSM-WFP partnership. We have made significant strides in the partnership's efforts in scaling up fortified rice, both through retail channels and in social safety nets. Specifically, the partnership contributed to substantially scaling up the availability of fortified rice globally, from reaching 3.8 million in 2018 to 15 million people in 2020.

Equally important, the partnership programs create long-term systemic impact by raising awareness of the importance of nutrition while continuing to develop new scientific and technical solutions. For example, in 2021, 11 so-called DSM X-Changers worked on temporary assignments with WFP using their expertise in the fields of (social) marketing, business case development, packaging, quality assurance and (sales) data analysis. Accordingly, within the current Memorandum of Understanding for 2019–2021 (under renewal for 2022), the partnership is prioritizing rice fortification as a proven and cost-effective solution for combating malnutrition, with our partnership's activities supporting 15 countries globally. Additionally, the humanitarian organization is moving toward cash-and-voucher systems as a long-term strategy. The partnership continues to support WFP to empower consumers to improve their own nutrition and diets.

UNICEF

Since 2013, UNICEF, DSM, and Sight and Life have partnered to improve nutrition for women and children. Built on multiple pillars, the partnership aims to expand the scientific evidence base and operational proof of viability of targeted nutritional interventions; to increase awareness of the importance of good nutrition; and to make nutritious food products accessible to those who need them most.

Creating enabling environment and scaling up micronutrient powder uptake
In Nigeria, the partnership focused on providing an enabling environment for the uptake of micronutrient powder (MNP) and supported the Government of Nigeria in realizing its vision of scaling up the MNP program nationally from five to ten states, reaching three million children aged 6–23 months suffering from malnutrition. The program added Multiple Micronutrient Supplements (MMS) for pregnant and lactating women and integrated MNP guidelines into the national standards in Nigeria. Additionally, the partnership resulted in increased commitment by both private and public actors in Nigeria to improve the access to nutritious foods for young children, through engagement with the SUN Business Network.

The Social Movement on Nutrition program
The partnership expanded to India by supporting the UNICEF engagement of private-sector stakeholders as part of the Indian government's Social Movement on Nutrition program. The collaboration focuses on mobilizing the private sector around nutrition literacy, through the platform Impact4Nutrition (I4N), which was established in March 2019. In 2021, the platform, which won an internal UNICEF INSPIRE award and AVPN prize, has more than 200 companies on board.

Addressing agri-food business development
Furthermore, this partnership was expanded to address agri-food business development as part of an opportunity identified by Generation Unlimited (GenU), within the United Nations Secretary General's Youth 2030 Strategy. The key objective of this expanded cross-sectoral partnership is to embed a longer-term vision for Sustainable Food Systems (GenU SFS) in Africa; develop a business plan to attract young people to the agri-food value chain, in an effort to boost youth employment in Africa; and build an enabling environment along the agri-food sector conducive to thriving, sustainable and inclusive business.

World Vision International
Our partnership with World Vision and Sight and Life, with the slogan of 'Joining Forces for Last-Mile Nutrition', aims to bring prosperity and good nutrition to the most vulnerable communities in the Global South. Leveraging the unique capabilities and know-how of each partner, we design and implement sustainable market-based solutions that bridge the gap between public and private efforts for improving nutrition and fostering local economic development. For example, the partners worked on solutions for maize in Rwanda, eggs in Indonesia and Ethiopia, distribution channels in Brazil, and MMS in the Philippines.

The maize value chain in Rwanda
In Rwanda, the partners enable transformation of the local maize value chain, ensuring a more efficient, inclusive and sustainable supply chain. Partners work with and enable smallholder farmers through training and market access, while working on improving the quality of, and access to, raw materials for Africa Improved Foods (AIF) in Rwanda. After positive results of the initial pilot, the partners are now collaborating for scale-up. More than 31,000 children and almost 20,000 women benefit from AIF's Super Cereal product as part of World Vision Rwanda's COVID-19 response.

The EGGciting project
The EGGciting project in Indonesia focuses on eggs as an important source of nutrition and works to increase the availability, accessibility, and consumption of eggs at the household level in Sulawesi (Indonesia). Partners address bottlenecks in the supply chain and improve the quality of feed, while driving demand on the consumer side for improved nutrition by use of social marketing that stimulates the consumption of eggs as a nutritious product.

Building on the success of the EGGciting Indonesia project, the partners brought the EGGciting model to three regions in Ethiopia; Boset, Shaheme, and Bui. The program focuses on training small and medium poultry farmers in farm operation and feed management for improved nutrition, safety, quality, sustainability, and livelihoods. Simultaneously, the program aims to increase the accessibility to eggs and the understanding of their nutritional value, especially for women and children.

Social distribution of nutrition in Brazil
In Brazil, market research to support the social distribution of nutritional products started in 2019. This pilot continued throughout 2021 and is projected to transform the distribution of micronutrient-enriched products in Brazil by incubating last-mile nutrition female entrepreneurs to serve populations living in vulnerable communities through a door-to-door

business model. In 2021, Products were formulated and designed and an initial group of 200 women participated in workshops about nutrition and entrepreneurship.

MMS in the Philippines

In the Philippines, the partners launched a new program focusing on the MMS value chain for pregnant and lactating women in the Albay, Camarines, and Zamboanga del Norte regions. The program builds on the momentum behind MMS after its inclusion in WHO's essential medicine list. It aims to increase the availability and access to MMS, ensure adequate demand and use, and further encourage policy reform to include MMS.

Africa Improved Foods (AIF)

AIF is an African social enterprise that produces fortified foods made mainly from maize and soybean sourced from over 130,000 smallholder farmers in the region. These products include mineral- and vitamin-rich porridges and help meet the nutritional needs of vulnerable population groups such as pregnant and breastfeeding mothers, older infants, and young children. AIF addresses the food challenges facing Africa by building resilient food systems through sourcing, manufacturing, and selling nutritious, affordable, and accessible products. AIF was launched in 2016 in Rwanda as a public-private partnership between the Government of Rwanda and a consortium comprising DSM, the Dutch Development Bank (FMO), DFID Impact Acceleration Facility managed by CDC Group plc (CDC), and the International Finance Corporation (IFC), the private-sector arm of the World Bank Group.

A study executed by the University of Chicago shows that AIF delivers true value - improving the livelihoods of smallholder farmers, employees and their families, improving food safety, reducing malnutrition and contributing to broader development. The AIF intervention is expected to contribute over USD 1 billion to the regional economy over a 15-year period.

AIF's Kigali factory contributes to the local and regional economy

AIF's mission is to produce high quality nutritious foods from local ingredients. Already working with 45,000 smallholder farmers in Rwanda, to improve their productivity and quality and are scaling this further with partners. Focused on developing robust value chains that address the challenges of climate change and employment creation in the African food value chain.

AIF's Kigali factory employs over 300 skilled workers with well-paid jobs. Regional procurement of goods and services (such as transportation) has led to indirect economic development across East Africa. With a reach of over 1.6 million consumers daily, AIF has proven that this model can be profitable while contributing to SDG 1 (No Poverty), SDG 2 (Zero Hunger) and SDG 13 (Climate Action).

Positive results in 2021 despite the pandemic

Despite COVID-19, revenue grew to more than USD 60 million in 2021, as the need for humanitarian nutritious food supply continues to be high. Business-to-consumer sales grew significantly as the Nootri brand (comprising a range of fortified porridges) continued to gain popularity across East Africa. The year also marked the beginning of AIF's new ambitious growth strategy, with groundwork in Ethiopia and Kenya to accelerate and further scale up AIF's impact.

MANDI

In 2021, we continued to expand MANDI (Making A Nutritional Difference to India), a socio-commercial consumer products business delivering local nutrition and home fortification solutions that are affordable and convenient. The range of home fortification products involved, branded as NuShakti™, includes solutions for staples such as rice and wheat flour, as well as fruit-flavored fortified beverage powder and vitamin enriched candies – all of which have a base immunity benefit. The business aims to build education about the importance of health, nutrition and immunity, with the aim of tackling widespread malnutrition in India. Since its start in the third quarter of 2019, the business has faced two rounds of pandemic shutdowns for more than seven months, causing huge disruptions in systematic build-up. In 2021, Nu-Shakti™ products were distributed in four southern states in India in leading modern trade and grocery outlets.

Partners in Food Solutions (PFS)

PFS works to increase the growth and competitiveness of food companies in Africa. These aims are achieved by inspiring business leaders and linking highly skilled corporate volunteers from a consortium of leading companies including DSM, Cargill, General Mills, Hershey, Bühler, Ardent Mills, and J.M. Smucker Company with promising entrepreneurs and other influencers in the food ecosystem. The seven corporate partners have empowered hundreds of entrepreneurs to work toward stronger, more resilient food value chains across the African continent.

In 2021, DSM employees contributed over 1,240 volunteer hours, working with 52 African clients across 11 countries. By sharing expertise, the volunteers were able to assist local entrepreneurs in growing their businesses and supporting a supplier base of more than 102,600 farmers. In total, 62 DSM volunteers supported 67 service offerings to clients, of which 15 clients are owned or managed by women.

Scaling Up Nutrition (SUN)

The SUN Business Network (SBN) — co-hosted by the Global Alliance for Improved Nutrition (GAIN) and WFP — is the private-sector branch of the SUN Movement. It aims to support businesses in growing the role they play in nutrition and to support SUN countries in developing national business engagement strategies. The SBN is established in 18 countries and supports the development of new networks in 26 countries. These include almost 1,400 companies, mostly small and medium-sized enterprises. The global membership platform currently has 25 members, who have a combined workforce of over 1.1 million employees. Our Honorary Chairman Mr. Feike Sijbesma is a member of the Lead Group of the SUN Movement and Co-Chair of the Advisory Group of the Network. Our Vice President Malnutrition Partnerships and Programs is on the Operations Committee of the SBN.

Supporting SBN projects in Africa

We supported several SBN projects focusing on Sub-Saharan Africa. Together with the SBN global team, we built on the impact and energy of the first ever Nutrition Africa Investor Forum (NAIF) which reframed the dialogue around nutrition and supported the Global Pitch Competition 2020. As an SBN global member, we support the implementation of SBN principles, notably around workforce nutrition commitments; overweight, obesity and diet-related non-communicable diseases; and the delivery of technical assistance to national SBNs and their members. We advocate for business to take a leading role in these important issues and collaborate with SBN for stronger business accountability on nutrition and for the adoption of SMART nutrition pledges by business (UN Food System Summit, Nutrition for Growth Summit).

Sight and Life

As a global leader in nutrition, the *Sight and Life* Foundation uses science to change the way nutrition is delivered to people who need it most, specifically women and children.

With the support of DSM, *Sight and Life* delivers value by translating science into effective nutrition programming, building public-private partnerships, and developing viable social business models for affordable and nutritious foods.

In 2021, *Sight and Life* launched the Nutrition in City Ecosystems (NICE) project, a Swiss consortium with the Swiss Tropical and Public Health Institute, ETH Zürich, and Syngenta Foundation and supported by the Swiss Agency for Development and Cooperation. NICE aims to increase long-term access to and demand for nutritious foods produced via local and agroecological systems in Bangladesh, Kenya and Rwanda.

Through a long-term partnership with DSM and the World Food Programme, *Sight and Life* continues to create demand for nutritious and affordable food for women in Ghana via the OBAASIMA seal. Together with DSM, *Sight and Life* increases supply and demand for more and better eggs to populations at risk of nutritional deficiencies in Africa and Latin America.

This year also brought new publications and virtual events focused on key themes, including nutrient profiling, multiple micronutrient supplementation, adolescent nutrition, food systems, and the impacts of climate change on nutrition, sharing science-based evidence and expert knowledge. For more information, visit: sightandlife.org.

Other Initiatives

Catalyst

We continue to be an active Catalyst supporter. Our Honorary Chairman Mr. Feike Sijbesma continued his role on the Board of Directors and our Co-CEO Ms. Geraldine Matchett her role on the European Advisory Board.

In 2021, via our sponsorship of Catalyst's work on Women and The Future of Work (a long-term research-led program focused on ensuring equity in future employability), we participated in regular expert group meetings, contributing to research outcomes, and products developed by Catalyst for use by its supporters. We applied these products ourselves, for example the Workplace Flexibility model, in shaping our approach to hybrid workplaces. DSM experts on Inclusion & Diversity, and Hybrid Working spoke at a Catalyst event on 'Developing Flexible & Inclusive Teams'.

We also continue to make good use of Catalyst's broader resources, for example on Employee Resource Groups for the development of our own approach, and the Catalyst Inclusive Leadership model within our 'Leading Leaders' training program.

Valuable 500

The Valuable 500 is a global NGO aimed at unlocking the social and economic value of people living with disabilities across the world. In 2021, our engagement with the Valuable 500 focused on their platform for companies looking to invest in and improve their disability inclusion programs, by sharing knowledge and best practices with one another. Through this collaboration, we defined new aspirations in the area for disability inclusion to increase the representation of people with disabilities and to improve access to our buildings and digital infrastructure.

One Young World (OYW)

The One Young World Summit gathers 2,000 young leaders from more than 190 countries and all sectors, empowering them to make lasting connections to generate positive change for sustainable development. In 2021, our 10th OYW delegation comprised 20 colleagues representing all our businesses and regions. This delegation attended the Munich Summit in July 2021 which had been delayed due to the pandemic. This year also featured the first workshop hosted by DSM at OYW titled 'Unleash your potential in a VUCA world' to help participants discover about intrapreneurship and partnerships, and kickstart purpose-led business projects.

Working on business development and internal engagement

The community of over 120 OYW alumni manages different business development and internal engagement projects for sustainability. Projects implemented by previous delegations include a Personal Carbon Footprint Calculator, a learning and development game called 'The DSM Sustainable City™', a project on Sustainable Packaging, and the Tomato Project (a development project for fortified tomato sauce). The 2021 delegation is working on projects relating to fortified water, an employee-funded foundation, modern slavery, and refugees with disabilities.

External recognitions

We are proud when our efforts receive positive recognition from others. Below is a selection of some awards and recognitions that we received from NGOs and trade organizations, customers, suppliers and academia in 2021.

Asia Corporate Excellence & Sustainability Awards (ACES) conferred on DSM the 'Asia's Most Socially Responsible Company of the Year' award. ACES noted the role of sustainability in the company's identity, strategy, business and operations.

EXAME magazine recognized DSM as one of the three most sustainable companies in Brazil in the EXAME ESG Guide and one of the 67 most diverse companies in Brazil in the EXAME Diversity Guide.

New Jersey Business and Industry Association and New Jersey Business magazine presented DSM with an Outstanding Employer of the Year award in recognition of our efforts in the area of social well-being, such as the launch of our new Culture Compass.

Our sustainability initiatives were recognized in PWC's book on Sustainability Transformation in Japan. This was also featured in the Nikkei Newspaper.

DSM was selected as a winner in the Sustainable Business category at the Singapore APEX Corporate Sustainability Awards, organized by the United Nations Global Compact Singapore chapter.

SSON Analytics included DSM in their Top 20 Most Admired Shared Services Organizations (SSOs) and Global Business Services (GBS) benchmarking study 2021. This study provided valuable insights to how GBS are developing and allows companies to understand what needs to be improved to drive a high-performing GBS organization.

At the 13th Special International Roundtable of Multinational Corporation Leaders, DSM received the Outstanding Contribution Award in fighting COVID-19 in recognition of our efforts in this cause in China and globally.

ESG Ratings and Benchmarks

Sustainability is at the heart of our business. It is our core value: we see it as a key responsibility and an important business driver. This is reflected by our inclusion in several Environmental, Social, Governance (ESG) Benchmarks and Ratings, many of which rate us a (sector) leader.

Given the large number of prevailing ESG benchmarks, participating in each and every one of them is not feasible for any company, so we annually review and prioritize our participation. We are in favor of further consolidation and standardization of the ESG benchmarks as we believe this will encourage more companies to participate than is currently the case.

Our annual review of the ESG benchmarks to participate in, is based on the following criteria:

- Recognition and use by our stakeholders, including our investors
- Transparency of methodology
- Primary reliance on publicly accessible information
- Avoidance of additional administrative work
- Provision of sufficient feedback to participating companies to enable them to make meaningful year-on-year improvements

Our priorities in 2021, and the outcomes, are listed below.

We maintained a low-risk rating from ISS QualityScore throughout the year, including lowest risk (1 out of 10) in Governance and Environment. In April, ISS ESG reconfirmed DSM as 'Prime' according to its rating methodology. Our rating of B- puts us in the top decile relative to our industry group.

In September, EcoVadis awarded our company a Platinum CSR Rating. The Platinum rating places us in the top 1% of companies assessed in our industry.

In October, MSCI's rating of DSM was unchanged at 'AAA'. The report noted a lower water risk, our carbon emission reduction efforts and our program on product stewardship.

In October, we were again listed in the Vigeo Eiris Benelux, Europe, Eurozone and World indices. Vigeo Eris is now part of Moody's ESG Solutions.

In December, for our climate strategy, and water governance and strategy in 2021, we were assessed as double A by CDP.

We continued to be a constituent of the FTSE4Good Index. We have been listed on this index since 2004.

In January 2022, we were assessed by Sustainalytics regarding the risk of experiencing material financial impacts from ESG factors, ranking in the top 4th percentile in our industry.

People

At a glance

- 0.22 Frequency Index of Recordable Injuries, compared to 0.24 in 2020
- 76% Employee Engagement Index, compared to 76% in 2020
- 23% female executives, compared to 21% in 2020
- 30:70 female:male ratio
- 77% Inclusion Index, compared to 75% in 2020
- 100% of our employees were offered immunity-optimizing supplements

A year of continuous care for our people

With the COVID-19 pandemic continuing to affect many parts of the world, we made every effort to support the **mental and physical well-being** of our people worldwide. Above all, we encouraged all our employees to get vaccinated against COVID-19. In many regions, we also provided our employees with **health screening** and **flu vaccinations**. In addition, we extended our #optimizeyourimmunity campaign which provided all our employees and their family members with a free selection of **immunity-optimizing micronutrient supplements**.

In March 2021, we launched our '**It's OK**' campaign, which encouraged our employees to prioritize their mental and physical well-being. The campaign platform provided supporting materials developed by people throughout the company to improve mental and physical well-being, such as exercises, team activities and learnings, as well as resources providing professional help. In addition, with much of our **office-based workforce** operating at least partly from home during the year, we continued to put in place effective and inclusive **hybrid working practices**.

Delivering on our P&O strategy

Besides helping our people and organization to adapt to the effects of the pandemic, we also applied our efforts to realizing our **updated People & Organization (P&O) strategy**, which had been launched at the end of 2020. This strategy is composed of four pillars:

- Creating a flotilla-style organization
- Empowering our people
- Resetting the context for leadership
- Creating a contemporary workplace

Human rights, employee engagement and Inclusion & Diversity

We continued our strong commitment to human rights, employee engagement and Inclusion & Diversity. We took steps to strengthen our **human rights approach**, including an analysis of our own operations. Furthermore, we strive to provide our employees a working environment in which they can feel **safe, valued, included and cared for**. An engaged workforce, and an inclusive and diverse workforce are key to enable us to achieve our company purpose.

Aligning our People approach with the Materiality matrix

Our approach to People aligns with several material topics:

- Occupational health, safety & well-being (addressed in Safety and Health & well-being)
- Human rights (addressed in Human rights)
- Talent attraction & development (addressed in Empowering our people and Resetting the leadership and culture context)
- Employee inclusion & diversity (addressed in Inclusion & diversity)

Aligning our organization to focus on Health, Nutrition & Bioscience

With our **accelerated strategy** we have been reshaping our company into three new Business Groups, Food & Beverage, Health, Nutrition & Care and Animal Nutrition & Health, which will bring us closer to our respective end-markets. This also required adjusting our innovation structure to bringing scientific research and development closer to our customers, enabling us to develop innovative solutions at speed. In view of these changes, we are also adjusting the set-up of global support functions and our top leadership structure to reflect our future organization. As a result, the business-aligned activities of the DSM Innovation Center were assigned to their respective Business Groups. In their new homes, these R&D functions are fully equipped to deliver impactful innovations to the markets they serve.

We took important steps to redesign how our corporate functions – including Finance, Legal, People & Organization, Group Communications & Branding, and Group Digital Services – are structured and how they operate. Our primary aim was to strengthen and streamline functional excellence by creating a support model that more actively underpins our business ambitions and enables us to add greater value for our customers, and for their customers in turn.

By late 2021, all our corporate functions had defined roadmaps for their transformation, drawing on the input of a range of stakeholders, including employees. The new operating model and structures came into effect at the start of 2022. They will be further embedded and implemented throughout the year. Employee representation bodies and the relevant works councils were consulted as part of the redesign process.

In line with the set-up of our new organizational blueprint as a company focused on Health, Nutrition & Bioscience, the P&O function also streamlined its set-up to reflect the business set-up. The design of the new target operating model for P&O mirrors the set-up of the Business Groups and Innovation as well as the support functions. At the same time, the new organizational design aims to enable a more fluid way of working, a better employee experience, and improved development opportunities for employees in the function.

Safety, health & well-being

Safety

The safety, health and well-being of our employees has always been our top priority. The COVID-19 pandemic has further underlined the importance to address and focus on safety, health and well-being together. We adapted our ways of working to the constraints of the pandemic by supporting remote and hybrid working and continued to provide safe and healthy working environments in our laboratories and plants.

We actively monitor occupational and process safety – the safety of our people and operations. We also support the health and well-being of our employees through regional and global programs.

	Aspiration	2021	2020
Occupational safety[1]			
Frequency Index REC	< 0.24 in 2021	0.22	0.24
Frequency Index LWC		0.12	0.09
Process safety			
PSI Rate	< 0.15 in 2021	0.23	0.20
Occupational health cases		23	19

1 All data presented in People are subject to the Non-financial reporting policy.

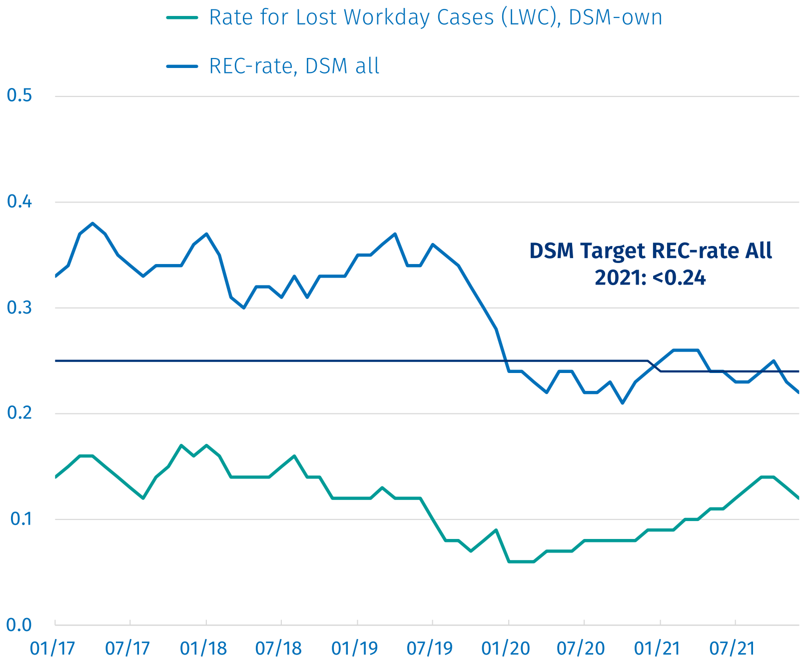
Occupational safety

Occupational safety is the safety of our employees and contractors. In 2021, we continued our improvement programs for sites and injury categories with the highest incident frequency. This has resulted in a further improvement of our incident rate in 2021, exceeding our ambition. Our recently acquired sites contributed negatively to our incident rate, both frequency as severity wise. Dedicated integration programs are running to improve the safety standards and culture on this category of sites.

Building on our strong safety foundation, as part of our DSM Responsible Care Plan update in 2021, we **strengthened our target level** to <0.20 by no later than 2027. This target level is the next step in our ambition to make our company fully incident- and injury-free, and will require us to consistently meet and exceed our current safety performance.

Frequency Index of Recordable Injuries

12 month moving average



Focus on our key initiatives driving success

We decreased with more than 60% the number of **recordable incidents** at the 12 sites that had the highest number of recordable incidents in DSM in 2020. In addition, our global programs, including **the 'I Care, We Care' campaign**, the drive for visible leadership, continuous attention for our top incident categories being **hand & eye safety**, and the '**improved learning from incidents**' initiative played a fundamental role in our safety improvement journey.

We strongly focused on enhancing our people's capabilities and their **leadership skills**. In particular, we revamped a large part of our **competence training program** to support enhanced virtual training, and we ran multiple leadership and cultural development programs at sites around the world.

Contractor safety

For our contractors, the Frequency Index of all Recordable Injuries improved to 0.41 in 2021 (versus 0.47 in 2020). **Better supervision** and increased attention to **contractor selection, qualification, and training**, which led to significant improvements in some parts of the organization, will be rolled out further in 2022.

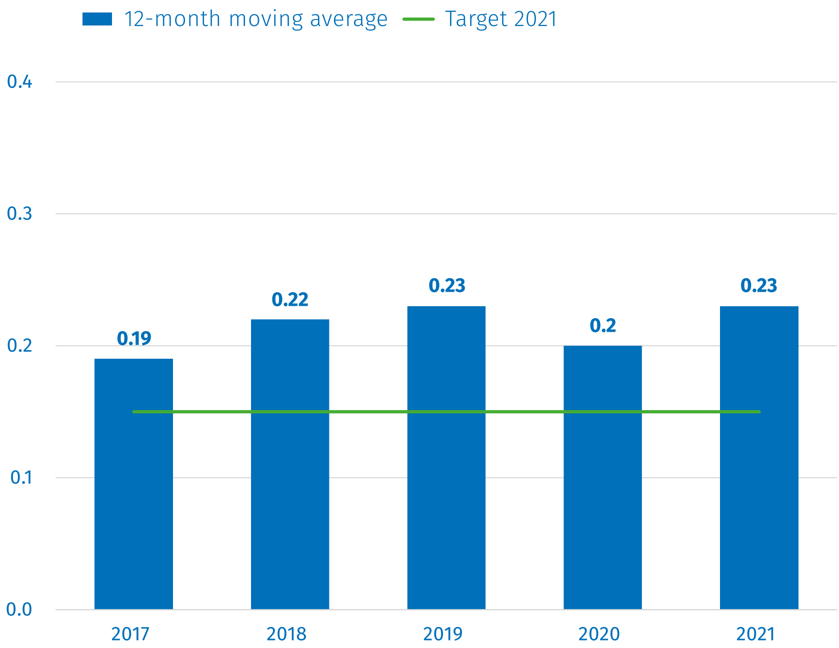
Focusing on SHE with passion and care

In our aspiration to become fully incident- and injury-free, we will continue to develop **an engaged and disciplined SHE culture** by means of focused **improvement programs** locally as well as globally. We will strengthen the support to our sites through more effective collaboration in the regions. In addition, we will give specific focus to ensuring **best-in-class integration** of newly acquired sites.

Process safety

Process safety refers to the safe operational design of our facilities. In 2021, our **Process Safety Rate** increased from 0.20 to 0.23, above our target level of 0.15. The increased rate can be mainly attributed to the divestment of Resins & Functional Materials and associated businesses, and the inclusion of new acquisitions. While we are disappointed with the performance, we see that awareness of how to **prevent small spills** throughout the organization has increased.

Frequency Index of Process Safety Incidents



In 2021, we carried out diligent follow-up of process safety incidents to ensure that we captured the lessons learned to avoid reoccurrences. Furthermore, we undertook process safety index reduction programs focusing on flange and hose management, overfill protection, manual valve operation, and safe 'big bag' and 'intermediate bulk container' (IBC) handling. Together with our Life Saving Rules, these programs significantly contributed to preventing the most potentially serious incidents.

Health & well-being

Occupational health

In line with our caring culture, we continuously strive to minimize exposure to potential health risks. The number of occupational health incidents reported increased from 19 in 2020 to 23 in 2021. The increase is mainly related to 3 reported mental health cases in 2021 versus 0 in 2020. The real number of mental health cases may be higher. Cases may develop over a prolonged period of time, and causes may be present in both working and private life, with the work-related portion going unacknowledged. Privacy concerns or cultural factors also influence employees' willingness to report and discuss personal health issues. We launched various mental health awareness campaigns in 2021 to increase employee awareness and mental resilience and to increase transparency in the reporting of all these cases. The number of physical occupational health incidents slightly increased from 19 in 2020 to 20 in 2021.

Industrial hygiene

Reconfirming the trend of the recent years, the majority of industrial hygiene-related incidents in 2021 concerned ergonomic risk factors. We also recorded three cases of allergic reactions from contact with chemicals. In 2022, we will launch improvement programs addressing both issues, with a focus on standardization, sharing of best practices, workplace improvement initiatives, and enhancing industrial hygiene capabilities. In addition, these programs will have a stronger focus on detailing the follow-up improvements.

Preventative measures for occupational illness

Beyond our dedicated health and safety awareness and behavior initiatives, we aim to prevent occupational illness through the design of our products and processes, and by providing high-quality protective equipment. In addition, on-site medical professionals offer primary care, as well as emergency preparedness and first aid.

“I am very proud of our people who were so resilient and stayed so committed during the numerous organizational changes we initiated while having to manage all the implications of COVID-19 and often having to work from home.”

Geraldine Matchett, Co-CEO and Executive Vice President People & Organization a.i.

Responding to the pandemic’s changing circumstances
Building on their work in 2020, our Global Response Team continued to help protect the health and safety of our people, in close collaboration with DSM representatives from each country, while ensuring business continuity as much as possible. These efforts involved coordinating an effective response to the pandemic, including establishing safe working practices. During the year, we evolved our standardized global approach to pro-actively address the ever-changing circumstances of the pandemic, taking into account the different dynamics in the countries in which we are active.

Prioritizing physical and mental health
Our COVID-19 Pulse Checks provided us with ongoing, up-to-date insights into how people felt during the pandemic. As a result, we launched a global health and well-being campaign called ‘It’s OK’. The ‘It’s OK’ campaign encouraged people to further prioritize their own health and well-being and brought together many already available regional resources to enhance individual health and well-being into a single platform. The campaign platform – which was visited more than 23,000 times in the first seven months – contains many resources, including personal development courses, podcasts and tips on how to work more healthily. It also links up all local employee-driven initiatives.

For example, a topic in the focus area of Workplace Well-being was on working off-screen. This module provided tips to encourage employees to build off-screen time into their agendas, whether through off-screen (walking) meetings or ensuring sufficient time between computer-based activities for walks, breaks and re-energizing. In the podcast series titled LearnFM, guest speakers shared personal stories and practical information on health and well-being.

In 2022, we plan to regularly update the campaign platform and strengthen the link with existing local initiatives.

Continuing #optimizeyourimmunity
In 2021, we extended our #optimizeyourimmunity campaign. This campaign provides all our employees and their families with a free selection of immunity-optimizing micronutrient supplements and education to overcome the challenging pandemic period. In APAC and Latin America, ampli-D®, a ready-to-launch product which is three times faster and more effective than traditional vitamin D, was distributed to employees working on site and from home. In the US and Switzerland, all DSM employees working on site and in home offices were provided with d.velop™, the recently launched product of Hologram Sciences. d.velop™ is a holistic immunity solution with an advanced vitamin D formula, diagnostic kit, and digital support. For other European, Middle East and African workers, ampli-D® will be made available in 2022.

Ensuring COVID-19-safe work
Throughout 2021, we continued efforts to provide, often at regional level, solutions that help our employees manage the impact of the pandemic on themselves and their families. In our operating facilities, measures were taken to reduce COVID-19 risks. Additional costs that employees faced because of a lockdown or associated restrictions related to their work were also addressed.

For employees whose roles allow working from home on a regular basis, support was provided to facilitate this. Efforts were made to enhance awareness of occupational safety and healthcare aspects of the home office environment, for example via a new e-learning for all Dutch colleagues, while support was provided in setting up a home workplace, for instance by providing office furniture and equipment or local subsidies, led by the Total Rewards teams.

Delivering on our P&O strategy

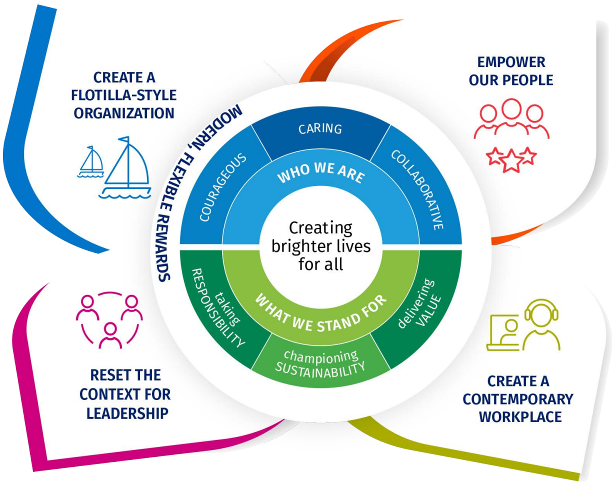
In 2021, we continued to execute our People & Organization (P&O) strategy, which was launched in the fourth quarter of 2020. In full alignment with our wider business ambitions, the P&O strategy guides the focus of our P&O function, helps define our priorities when investing in our people, and helps to steer the company toward a better employee experience.

	Aspiration	2021	2020
Training[1]			
Training hours per employee[2]		8	6

1 All data presented in People are subject to the Non-financial reporting policy.

2 Training hours includes developmental-focused trainings and our values trainings. It excludes compliance-related trainings.

As depicted below, our P&O strategy is centered around our **Culture Compass**. It has four focus areas, which aim to enhance our approach to **organization**, **people**, **workplace**, and **leadership**. These areas are enabled by the right rewards and our employee experience and analytics.



The four focus areas of our strategy

Creating a flotilla-style organization

In 2021, we made significant progress in evolving toward a **flotilla-style organization**, in which critical direction comes from the center, surrounded by agile units that are empowered to achieve our common goals. We believe that embracing this model, and **integrating agile ways of working**, will help us to drive efficiency and impact, and enable us to respond more quickly to external forces.

Empowering our people

In a world characterized by high-paced change, digitalization, and business transformation, we aim to provide a **personalized and empowering environment** that encourages all our people to take ownership of their performance, development, and careers while continuing to deliver sustainable high impact as individuals. To this end, we are developing a wide range of **user-centric tools and solutions** to help our people to grow, perform, and be at their best. These tools enable our people to customize their own **personalized learning and growth path** within the DSM framework and business context and allow individuals and teams to truly take charge of shaping their professional development and growth.

In 2021, we improved and expanded the scope of our **talent** platform, offering a new and improved talent experience for our people. By means of **artificial intelligence (AI),** the platform facilitates the matching of talents to opportunities and developmental tools. In addition to identifying internal and external candidates for vacant positions, the functionalities include **individualized recommendations** on projects and mentors that fit the employee's profile, in line with their individual career ambitions. As such, it allows the individual to shape their own career management.

We also invested in LinkedIn Learning to enable systematic and personalized online learning and people development. This investment gives our employees access to a comprehensive digital learning library, with over 16,000 courses in seven languages. In the first ten months of having LinkedIn Learning accessibility, our employees watched over 250,000 of the digital library's videos. These videos provided learnings relevant to specific employees and to DSM's broader context.

Furthermore, we launched our 'Learn Together, Grow Together' campaign in late 2021 to further embed a learning culture and mindset across DSM. Through a series of local and global initiatives, this campaign encourages employees to take ownership for their development and personal growth. This activation is a crucial element in fully leveraging the tools we launched and as such, 'Learn Together, Grow Together' will over the next few years visibly foster an environment where employees feel empowered to deliver sustainable impact as individuals.

Creating a contemporary workplace

We accelerated the transition toward hybrid working in 2021, which combines both remote and office work. Choosing hybrid work means teams are empowered to decide where, when, and how to deliver value. In practice, teams come together and share responsibility for designing their working week based on the activities they must do – and how best to do them. For employees based in plants or labs, where the nature of the work requires tasks to be undertaken on site, we explore options for flexibility.

Our TeamPact App supports a tailored approach to team dynamics, where each employee's personal circumstances are considered. Through this interactive conversation tool, teams can agree where, when, and how they work to deliver on their objectives. The application also prompts and guides teams to help them address obstacles and maximize the benefits of hybrid working. Overall, by reducing commuting and business travel, we aim to empower our distributed workforce and positively impact people, planet, and profit.

We furthermore started a pilot in the Netherlands with an attendance app (Mapiq) with the aim to help facilitate our employees going back to the offices in compliance with the corona measures in the country. By informing our employees of who will be in the office on a certain day, the app facilitates employee interactions, such as face to face meetings and social engagements. The aim is to launch this app globally.

Beyond hybrid working, and to support the health and well-being of all our employees in the context of the pandemic and shifting work practices, our regional teams organized a wide range of initiatives and programs that help to safeguard physical and mental health. Among many of these initiatives, we made available health screenings and checks, offered sports and yoga programs, ordered flu vaccinations, and secured oxygen concentrators for employees and their families in India during a period of critical demand in early 2021.

In addition, we continued to put mental health at the center of all employee support efforts. Around the world, many of our sites extended their employee assistance programs – involving webinars, counseling sessions, and the distribution of self-help material – which offered emotional, psychological, and occupational support in local languages.

Resetting the leadership and culture context

Throughout 2021, we continued to integrate our new Culture Compass, in line with our aim to embed our culture across all areas of our employee experience. For the first time, culture awareness and experience were measured within the Employee Engagement Survey, scoring an overall 76%.

In 2021, the Culture Compass was successfully integrated into our Performance Management system, within an updated set of behavioral indicators for all employee levels, which feed into individual ratings and subsequent rewards. Training and guidance materials were provided to all people managers to implement the new approach.

As in previous years, continuing our regular performance and development evaluations was key to ensure we are a performance-driven company and that we develop our people for roles today and into the future. In 2021, almost 15,000 employees had access to the global digital evaluation tool for performance reviews. All other employees participated in performance evaluation on paper or by means of local systems.

We continued to mobilize a bottom-up approach to engaging employees with the new Culture Compass via a network of over 100 employee volunteer **Culture Conversation Champions**. A **Culture Hub site** provided access to Culture assets and resources in the different DSM languages, which were used by these Champions to facilitate local meetings, communications, and events.

A new virtual program '**Leading through Culture'** was designed to support people managers to bring culture change to their own teams. The program received positive feedback, and over 50 programs were delivered by the end of 2021. Since its launch, the program has been updated and is now included within **business-owned change roadmaps** to support culture and behavior change, in line with DSM's strategic acceleration.

Enabling our strategy

Modern, flexible rewards

In 2021, we continued to adapt the way we reward our people to better reflect and enable our key strategic drivers. More **flexible reward arrangements** are needed to meet the diverse challenges and needs of our people and our businesses. In view of this, our incentive programs were further streamlined and better aligned with the respective businesses. Following the selection of a supporting platform in 2021, a pilot program will be launched in 2022 to help us boost our **Recognition Framework** to make it more meaningful and tangible for employees. Based on the results of the pilot, including employee feedback, a further roll-out will take place, facilitating a more tailored yet **globally consistent approach** to rewarding and recognizing specific individual and team contributions.

Our global scale was leveraged as part of a multi-year project to **procure employee benefits** (such as insurance) and manage the associated policies and services in a more coordinated way. Through this initiative, we improved the global oversight, financing, terms and conditions of these benefits for the company and our employees. This foundation is essential for us to offer more **flexible rewards** going forward. We plan to expand on these efforts in 2022 and beyond, to ensure benefits continue to be a key offering, delivering value to our employees.

These initiatives demonstrate that our ambition is to take a more holistic approach toward **total rewards**. Current and future employee perceptions and input also inform our direction. In the coming year, we aim to incorporate more **employee feedback** in the design of our reward offerings, with the ultimate goal of strengthening our overall **employee value proposition** and the employee experience. By adopting a more comprehensive and integrated view of rewards, further embedding technologies in our processes, and incorporating employee as well as business perspectives, strategic decisions will be based on more relevant input.

Employee Experience and Analytics

In 2021, we took important next steps toward professionalizing our **approach to analytics** and our understanding of the **employee experience** – both of which will increasingly serve as critical drivers of how we work and deliver value for our people and organization.

To ensure alignment on how we understand and drive employee experience forward, we designed our **Employee Experience Vision.** While employee experience is personal, this Vision outlines our ambitions to create an environment in which our employees feel taken care of, engaged, empowered, able to deliver, and able to grow. On top of this, it outlines a set of **key principles** on how we want to get there, including but not limited to ensuring consistency and transparency in how we communicate and act as an organization. The Vision will serve as a powerful foundation from which to develop our employee experience efforts going forward.

Furthermore, to deliver on our ambition to become a truly data-driven P&O function, we made a significant investment in increasing **data transparency**. In particular, we selected a new **data and insights platform** that integrates and structures our most critical people and organization data. With intuitive, pre-built analytics, the platform delivers **people and organizational insights** fast, allowing us to drive decision-making. In 2022, we will roll out this platform to our P&O colleagues around the globe and leverage it as a catalyst to further embed data-driven decision-making into our ways of working and continuously improve our data foundations.

We aspire to become a more **data-driven P&O function** and **employee-centric organization** and have made this central to our agenda. In the years ahead, we aim to further scale the impact and reach of our analytics and employee experience efforts by:

- Further **professionalizing** the way we listen and respond to our employees' needs and expectations
- **Building capabilities** in human-centered design across the organization
- **Driving synergies** between key processes, initiatives and technology by working in a more integrated, cross-functional and harmonized way to drive forward our strategic agenda

Human rights

We strongly believe that it is our duty to respect internationally recognized human rights, including the rights of people along our entire value chain. Human rights are integral to our purpose-led and performance-driven strategy. We believe that the basic rights and freedoms to which all people are entitled should be understood, respected, and promoted by all companies as the cornerstone of responsible business.

	2021	2020
Gender pay gap[1] [2]	7%	8%
Living wage		
Employees below lower-bound	0%	-
Employees below higher-bound	< 0.1%	< 2%

1 Gender pay gap percentages are in favor of women. Percentage excludes Pentapharm (Switzerland & Brazil), Jiangshan, Twilmij and Erber.

2 All data presented in People are subject to the Non-financial reporting policy.

Respecting human rights means that we follow international guidelines and implement the United Nations Guiding Principles (UNGPs). We have further elaborated on this in our **(revised) human rights policy**, available on our company website, in which we also set out our governance structure (**DSM's Human Rights Steering Committee** and assignment of the role of DSM's Human Rights Lead) and our **due diligence processes** for identifying and mitigating risks. Grievances relating to human rights are addressed according to the Code of Business Conduct and our whistleblower procedure, DSM Alert.

Strengthening our human rights approach

In 2021, we took important steps to strengthen our approach to human rights, as well as to further embed this approach throughout our operations. For example, we undertook an in-depth analysis of **salient human rights issues** in our own operations and conducted a **human rights impact assessment** in India. Through this impact assessment, we were able to identify key points for improvement for upholding human rights in India, as well as for our global approach to human rights. Looking ahead, many of these points for improvement will be further included in **national action plans** as well as in our global **Human Rights Roadmap**. Specifically, topics such as living wage and grievance mechanisms will be further explored.

Through virtual learning sessions, DSM's Managing Board and Executive Committee also received an in-depth training on human rights. Tailored training will be provided to other targeted audiences throughout 2022.

A focus on salient issues

In 2021, we started to implement **due diligence** structurally as part of our human rights approach. This approach meant a review and relaunch of our **human rights policy**, and a more elaborate and inclusive salience analysis of our potential human rights risks. This analysis identifies the **salient issues** that have the potential for the most severe negative impact through our activities or business relationships, and allows us to better prioritize and focus on the most severe potential impacts. Our salient human rights issues are child labor, health and safety, living wage, forced labor, migrant workers, harassment, land acquisition and resettlement, human rights defenders, and freedom of expression and rights issues from industrial agriculture. These issues will be the focus points of our human rights work in the years to come and are included in our human rights roadmap. We recognize that other human rights may become greater priorities over time, and we will regularly review our focus areas.

Fair remuneration

DSM is committed to the principle of equal opportunities for all employees, which includes providing our employees with a living wage. We align our calculations with the Anker methodology (Anker and Anker 2017). We also aim to reward our employees for their overall contributions to the company, setting equal pay for men and women doing similar work that requires equivalent qualifications and skills. Our Fair Remuneration Statement, available on our company website, further elaborates on our position.

Gender pay gap and equal pay

We continue to use the GRI 405-2 topic disclosure as guidance for calculating our gender pay gap. Our 2021 results showed a gender pay gap of 7% in favor of women, (female:male pay ratio of 107:100), a change of 7 percentage point compared to 2020, which is mainly due to changes in the average salary of both genders and headcount fluctuations in the 6 regions. This ratio is based on validated employee base pay data for locations where we have significant operations and covers approximately 66% of our global employee base. These operations include Brazil, China, India, the Netherlands, Switzerland and the US, excluding our operations in Pentapharm (Switzerland and Brazil), Erber (all countries), Twilmij (Netherlands) and Jiangshan (Jiangsu Province, China). The pay gap can primarily be attributed to a higher proportion of male employees in lower-level positions, and it does not necessarily indicate if we pay men and women equally for doing similar work.

We aim to make further progress in the area of equal pay. Throughout 2021, we continued our partnership with AnalitiQs to develop an advanced analytical model that will allow us to investigate background variables in much greater depth and obtain useful insights. We concluded that a more holistic approach to equal opportunities is needed to allow us to further advance in this regard. This will also require cross-functional collaboration including linkages with data analytics and diversity, equity and inclusion. In 2022, we will continue to further advance the use of the analytical model and renew our focus on opportunities within the cross-functional approach.

Living wage

We are committed to paying a living wage to all our employees based on WageIndicator's benchmark methodology. We have started with our significant locations of operations (defined above). We aim to expand the number of countries included in this analysis over the coming years. In 2021, we assessed wage levels against WageIndicator's typical family with higher-bound (our target level) and lower-bound (for comparative purposes) living wage figures. WageIndicator's methodology uses the following definitions:

- The typical family is defined as two adults with a number of children derived from the national fertility rate
- The employment rate is defined as one adult working full-time, while the employment rate of the other adult is derived from the national employment rate
- The higher-bound uses prices (for housing, food and other indispensable goods or services) at the 50th percentile (where 50% of people report higher prices), while the lower-bound uses prices at the 25th percentile (where 75% of people report higher prices)

Based on our assessment, two employees (less than 0.1% of employees in scope) are paid below the higher-bound living wage figures These employees left the company in 2021, so no corrective action can be taken in 2022. No employees were paid below the typical family with lower-bound living wage figures.

Employee engagement

We strive to provide an employee experience where everyone can feel safe, valued and included, and where every employee can offer their unique contribution. An engaged workforce is essential for our organization to have impact and deliver on our purpose, and engaging with our employees in 2021, with the pandemic ongoing, was crucial. We did so in a variety of ways, with online webcasts, virtual family days and employee events, regular newsletters and regional events with our Co-CEOs, executive calls and annual conferences.

	Aspiration	2021	2020
Engagement Index[1]	>75% by 2021	76%	76%
Participation Rate		92%	92%

1 All data presented in People are subject to the Non-financial reporting policy.

We monitor our employee engagement and well-being through a variety of surveys and 'check-ins'. In 2021, these included our COVID-19 Pulse Checks (until March), and our Employee Engagement Survey (EES). Continuous listening to our employees is core to shaping the DSM employee experience, providing insights that can quickly translate to actions and impact. This strategy will provide insights that can be continuously translated into relevant insights and actions regarding the employee experience and to inform better-quality decisions.

We also employed additional communication efforts to keep employees informed and engaged, including through our internal news platform and by mobilizing our regional network of Engagement Champions to deploy engagement best practices locally.

The Employee Engagement Survey

Our annual Employee Engagement Survey helps us understand how our employees feel at work and where we need to improve our employee experience. The Survey reflects the views of our payroll employees (in October 2021) and excludes recent acquisitions and divestments. The responses we receive enable us to initiate fruitful conversations and lead to concrete positive changes in our workplace. The feedback we received in the 2020 Employee Engagement Survey, for example, was reflected in our approach to hybrid working and a health & well-being campaign in 2021.

In 2021, managers whose team included five or more survey respondents were eligible to receive specific team reports online; this amounted to more than 1950 managers (an increase of more than 150 compared to 2020). To help managers share results with their teams, lead conversations and agree actions, training and support were available from survey champions as well as P&O and communications colleagues. Furthermore, a global digital platform was set up with concrete tips, tricks, and materials on how to continue the dialogue on engagement throughout the year as well as a link to local champions to support that process.

How we measure Employee Engagement

We measure four engagement attributes: commitment, pride, advocacy, and satisfaction. The 2021 EES retained the structure and content of the previous survey, comprising questions on safety, engagement, management, inclusion and other key themes, but we also introduced three new questions that were specific to each Business Group. This meant our Business Groups received more targeted insights into employee engagement as well as allowing us to identify topics that we can investigate further in future surveys.

The EES also offered space for employees to provide comments: more than 50,000 comments were received in 2021. In approximately 70% of the comments, employees expressed positive feedback on the announced strategic direction of the company, as well as their overall pride in working for DSM. Another key topic that emerged from the comments was related to work-life balance, including the challenge of keeping this balanced in COVID-19 times while working from home.

Engagement levels remain high

In 2021, the survey was sent to all employees and was available in 23 languages. We saw a response rate of 92%, equal to the highest recorded rate (in 2019 and 2020) since the first edition of the survey in 2007.

Overall employee engagement remained at the same level as 2020 at 76%, while many of our comparable questions and indexes saw an increase. We made progress in our 2020 focus areas: Talent rose from 67% in 2020 to 70% in 2021 (including a 3% improvement on the question relating to learning and development opportunities, from 74% to 77%); and Inclusion improved from 75% to 77%. We also maintained our Safety score at 93%. The Strategy question on employees' views on the company's 'promising future' was 82%, indicating a positive reaction to, and support for, the acceleration of our strategic journey.

Above all, the results underline the positive effects of our active efforts to maintain high levels of engagement during the pandemic through **strong and clear communication**, new **work flexibility** and more **visible leadership**. Our targeted engagement improvement programs have also had a positive effect according to the responses received, with improved engagement scores in the 25 sites with the lowest scores in the 2020 EES. These improved results were attributable to three programs: **Personal Development** (focused on improving an individual's development and making support more accessible), **Team Building** (ranging from more frequent meetings, to socializing and improving communications), and **Reorganization** (where structural changes to a team were implemented).

Identifying and addressing areas for improvement

While our Engagement Index remains at 76%, and the majority (77%) of the comments were positive, with broad support for our strategic announcement, the survey highlighted a few key **areas of concern**. These included below-average scores in '**career opportunities'** and some losses in **Inclusion**.

The combination of positive and sub-par scores, as well as the emerging themes of **well-being** and **work-life balance** which emerged via employee comments, provided us with direction for the following focus areas:

- **Managers**: we will continue to build on positive behaviors, manage development initiatives, and support improved processes for effective managing
- **Talent**: we will accelerate the focus on career development
- **Inclusion**: we will continue to build inclusion practices, paying attention to target groups covered by our five Inclusion & Diversity (I&D) pillars, and identified by internal surveys such as EES or regional I&D Surveys
- **Well-being**: we will maintain focus on this area by integrating employee health & well-being programs

These areas are all addressed through our People & Organization strategy and our dedicated Inclusion & Diversity strategy. In addition, we will continue to share regular, open, and transparent communications that inspire employees to participate in the company's transformation journey.

Inclusion & diversity

In 2021, we continued our efforts to ensure that all our people feel included and cared for. Fostering and maintaining an inclusive and diverse workplace is key to helping our employees offer their best, most authentic contribution, and is a prerequisite for delivering on our ambitions and accelerating our strategic transformation. We accelerated progress on our five diversity pillars – Gender, Race, Ethnicity & National Identity, LGBTQ+, Disability and Generations - by identifying three focus areas in which to apply our efforts: recruitment, development, and inclusion.

	Aspiration	2021	2020
Inclusion index[1]		77%	75%
Internationalization & diversity			
Female executives	25% by 2021	23%	21%
Under-represented nationalities	35% by 2021	31%	30%

1 All data presented in People are subject to the Non-financial reporting policy.

I&D Governance Framework

DSM's Governance framework for Inclusion & Diversity ensures **strong ownership** and steering on the part of executive and senior leadership, with operational responsibility shared between the business and regions.

In 2021, we further embedded the framework with our Co-CEOs sharing the Chair for the **I&D Council**, and each Executive Committee member taking **active sponsorship** of one of the five pillars (depicted above). The direction of our I&D strategy, along with our commitments, were discussed and agreed at the Executive Committee.

Our Inclusion & Diversity Council - which provides input to I&D strategy and drives program activation – is composed of **Regional Presidents**, business leaders and **Employee Resource Group** leads. Additionally, each region has a nominated I&D Lead to drive and coordinate locally relevant activities, with support from the corporate I&D team.

The focus areas for I&D: Recruitment, development and inclusion

A wide range of initiatives was undertaken within these **three focus areas** by our global Inclusion & Diversity (I&D) team, in close collaboration with regional teams and Employee Resource Groups. These initiatives aim to diversify our **current and future talent pools**, improve **development opportunities** for underrepresented groups, and ensure a **psychologically safe and inclusive working environment** where all our colleagues can be their authentic selves. Our efforts are reflected in the increase of our inclusion score (+2%), which is even more evident in our regions such as China (+5%) and Latin America (+4%).

Expanding our I&D network

Since the launch of the new I&D strategy in 2020, our I&D network has expanded significantly through active **Employee Resource Groups** and regional I&D teams. The numerous initiatives and events of this network contribute to positive increases in inclusion scores. Examples of such initiatives include:

- I&D forums on gender, generation and LGBTQ+ in China
- Launch of a cross-organizational I&D working group in collaboration with the Dutch Embassy in Japan
- Implementation of women-enabling policies in India
- DSM Netherlands signed the *Sociaal Economische Raad* (SER) Diversity Charter
- Launch of a 'Just About Inclusion' initiative in Switzerland
- The development of a mentoring and sponsorship program for Black and African-American employees in North America
- The development of a joint commitment to I&D with a network of suppliers in Latin America

Our performance on our I&D targets

In 2021, we realized a 2% increase in the **percentage of executive women**, from 21% to 23%, reflecting changes implemented in our talent acquisition and recruitment processes, which included **50:50 gender-diverse shortlists** and **unconscious bias awareness** sessions for recruiters. We increased our percentage of **under-represented executives** from 30% to 31%. Despite this, we **underperformed** against our 2021 targets for female (25%) and under-represented groups (35%) at executive levels.

Several factors influenced this outcome, including the divestment of Resins & Functional Materials and associated businesses, competition for high-profile candidates in a buoyant market, and the impact of ongoing DSM transformation initiatives.

With the current targets expiring in 2021, our global I&D team worked closely with stakeholders to agree new ambitious I&D commitments for the period 2022-2025. These include:

- 30% of our executives to be female by 2025
- 40% of our executives to be from currently under-represented nationalities by 2025
- Global business and functional Leadership Teams to be a minimum 30% diverse by gender and nationalities by 2025

In addition and in line with our broader commitments to the five pillars of I&D, the regions will take ownership for achieving progress via locally-relevant programs, following our overall focus on recruitment, development and inclusion. Regional I&D surveys, supported by the corporate team, were delivered in 2021, providing not only useful baseline data for identifying priorities, but also offering employees the opportunity to self-identify on demographics that we cannot track globally. This type of diversity data is collected and managed following all data privacy and GDPR guidelines, securing employees' anonymity.

On the basis of this insight, and local factors, regions are initiating programs such as improving access to employment for people with disabilities, ensuring equality in policies and benefits for LGBTQ+ colleagues, and awareness and education initiatives.

Finally, we will continue to invest in creating a culture where diversity thrives. In 2022 we launch a new inclusion program, Brighter Together 2.0, for all teams. Ultimately DSM commits to workplaces where business goals are achieved with respect for people's dignity and their human rights.

Planet

At a glance

- 27%[1] absolute reduction of scope 1 + 2 greenhouse gas emissions versus baseline 2016
- ~23% structural improvement of scope 1 + 2 greenhouse gas emissions versus baseline 2016
- 8% scope 3 greenhouse gas emissions intensity improvement versus baseline 2016
- 72% purchased electricity from renewable resources
- 6.0% energy efficiency improvement, year-on-year
- 7.8% water efficiency improvement in water-stressed sites versus 2020

We take our **global environmental responsibilities** very seriously. These extend beyond our own operations to include those of our **suppliers, customers and end-users**. We fulfill our **environmental responsibilities** through our portfolio of Brighter Living Solutions, our Safety, Health & Environmental (SHE) policy, and our position on issues such as product stewardship and biodiversity. We focus on:

- *Improving* our own environmental footprint
- *Enabling* our customers to do the same through innovative solutions
- *Advocating* on our key environmental topics

At the end of 2021, our operations network spanned more than **100 commercial production facilities** in 41 countries. Our operational approach is guided by the DSM Responsible Care Plan, described below, and supports the **Sustainable Development Goals** (SDGs), especially SDG 7 (Affordable and Clean Energy), SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action). Our Planet reporting addresses our performance on several material topics identified in our Materiality matrix:

- Climate mitigation
- Climate adaptation
- Waste & circularity
- Nature & biodiversity
- Water stewardship
- Product stewardship

We made good progress on our environmental ambitions, as defined in our Responsible Care Plan

The DSM Responsible Care Plan (DRCP) is aligned with our strategy. The DRCP defines our ambitions, targets and actions in the Planet-related fields of environmental footprint, value chain sustainability and climate adaptation.

Our key targets are our Science Based Targets

The key targets in the DRCP are our **Science Based Targets (SBT)** that represent our contribution to climate change mitigation. In 2021, we **increased our ambition level** based on our strong performance on greenhouse gas (GHG) emissions reductions and to reflect the latest scientific insights from the **Intergovernmental Panel on Climate Change** (IPCC). Our SBT are an **absolute reduction of** GHG emissions **from our operations (scope 1 + 2)** by 50% (strengthened from 30% in 2021) and a **value chain (scope 3) intensity reduction** of 28%, both by 2030 versus our 2016 baseline. These are also the foundation for our net-zero-by-2050 commitment. The independent Science Based Targets initiative reviewed and approved our targets first in early 2019 and again for our step-up in ambition in 2021.

1 All data presented in Planet are subject to the Non-financial reporting policy.

Our scope 1 + 2 target is supported by our **renewable electricity target** (75% of purchased electricity to be sourced from renewables by 2030 and reaching 100% at the earliest possibility) and our **annual average energy efficiency improvement** of at least 1% until 2030. Our scope 3 target is supported by the CO2REDUCE program.

Besides mitigating climate change, we are also working on **climate adaptation**. In 2020–2021, we conducted physical risk assessments on our top 30 sites to improve the **resilience** of our assets against potential **physical impacts** of climate change. In 2021, we also established and piloted a process in two Business Groups to identify and assess the potential impacts of the **different speeds of transition** to a net-zero world. We will expand and continue this work iteratively in the coming years. More information on our risk assessment is provided in Risk management.

Our other company targets are driving improvements in the areas of water, waste, other emissions and substances of concern. We will continue to drive the various **water improvement plans** that we identified during the water risk assessments in the past year. We committed to reduce our **water intake in water-stressed areas**. Furthermore, we continue to enhance our insights and capabilities to steer **waste reductions** and we are further developing action plans for products containing **substances of very high concern**. We regularly review progress on our plans and update our targets accordingly. Our target setting process is underpinned by the plans and measures needed for their realization.

In 2021, we made good progress on the key objectives of the DRCP as reported elsewhere in this section. DRCP 2019–2021 was successfully delivered, with **GHG emissions reductions** ahead of plan and **top-quartile safety performance**. Our new 2022–2024 DRCP fully aligns with our updated strategy and reflects the industry's standards and expectations. Our key topics remain **climate** and **safety**, with other key topics of product stewardship, industrial hygiene, employee health & well-being, water and waste and biodiversity. Due to decreased materiality to the company, topics that are more specifically aimed at the chemical industry (e.g., volatile organic compounds and waste recycled) will be monitored, but no target level is defined. Additional information about our Planet performance is provided in the five-year summary – sustainability tables, our Value creation model and Stakeholder engagement.

Climate mitigation

In 2015, the Paris Agreement first established a common ambition to take urgent action on GHG emissions to limit average temperature increases to well below 2°C. Later in 2018, the Intergovernmental Panel on Climate Change (IPCC) provided a clear and compelling case to redouble efforts to limit warming to 1.5°C. Our fair share of this ambition requires our emissions to reach net-zero by 2050 with a rapid acceleration of the rate of our emission reductions over the coming decade — these are specified in our net-zero commitment and Science Based Targets (SBT).

	Aspiration	2021	2020
Greenhouse gas scope 1 + 2 (market-based)[1]			
Absolute reduction (SBT) versus 2016	50% by 2030[2]	27%	
Estimated structural improvement versus 2016		approx. 23%	
Scope 1 + 2 emissions (million tons CO_2eq)		1.21	1.24
Corrected baseline (2016, in million tons CO_2eq)		1.66	1.65
Greenhouse gas scope 3			
Intensity reduction (SBT versus 2016)	28% by 2030	8%	5%
Scope 3 emissions (million tons CO_2eq)		11.7	12.0
Energy			
Purchased electricity from renewable sources	75% by 2030	72%	60%
Energy efficiency improvement year-on-year	> 1%	6.0%	5.7%
Primary energy use (PJ)		21.4	21.5
Final consumed energy (PJ)		18.8	18.2

1 All data presented in Planet are subject to the Non-financial reporting policy.

2 Target level strengthened in 2021 from 30% by 2030.

Aligning our climate approach with science

We were one of the first companies to align our efforts with the latest science as presented in the **IPCC Special Report** '[Global Warming of 1.5°C](#)' by setting a long-term pathway to reach **net-zero GHG emissions** across our operations and value chains by 2050. Our Science Based Targets are the intermediate step to achieve this goal, supported by our ambitions regarding renewable electricity and energy efficiency, and by working intensively with our key suppliers through our CO2REDUCE program. This requires transforming our operations and value chains.

We are working with **long-term innovation roadmaps** that will bring us as close to zero emissions as possible in the coming decades. This includes investments in a portfolio of solutions that can help our customers to do the same. We will also eventually deploy **permanent carbon removals** to neutralize any residual emissions to reach our net-zero ambitions. These removals will need to meet the highest quality criteria and **social and environmental safeguards.** Our net-zero activities are guided by the **SBTi NetZero Standard** and **Business Ambition for 1.5°C commitment** framework.

"We continue to show good progress on our climate targets. Our climate action plan identifies the key measures that are important for DSM, including our emissions reduction programs for our own operations and supply chain, and steps to improve our resilience. Our Food System Commitments demonstrate the impact of our products on society. Beyond our own value chain, accelerating global climate action is a key pillar of our agenda."

Dimitri de Vreeze, Co-CEO, Royal DSM

Business measures supporting our climate approach

In support of our ambition to substantially reduce our carbon footprint, we have introduced key measures which we apply to all growth projects. Since 2019, **business growth projects** must either be **GHG-neutral** or else be compensated for within the same business.

In addition, to encourage investments in low-carbon and carbon-free technologies, we use an **internal carbon price** (ICP) in the valuations of key investment projects and in the Profit and Loss statements of the Business Groups for internal management reporting. This increases the visibility of, and encourages accountability for, the **impact of carbon** emissions on the business. In 2021, we increased the ICP from €50/t CO_2eq to €100/t CO_2eq to better reflect the updated insights into the actual price of CO_2 to society. This price is also within the ranges of the scenarios we use for assessing climate transition risks.

Ownership of climate actions is at Executive Committee level

The **DSM climate action agenda** brings together our key climate actions addressing the three pillars of *improve*, *enable* and *advocate*. The progress of the agenda, including the implementation of the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations, the **GHG reduction program**, our **portfolio developments** and efforts to advocate for **accelerated transition** with partners, are managed and actively reviewed by the Executive Committee several times a year.

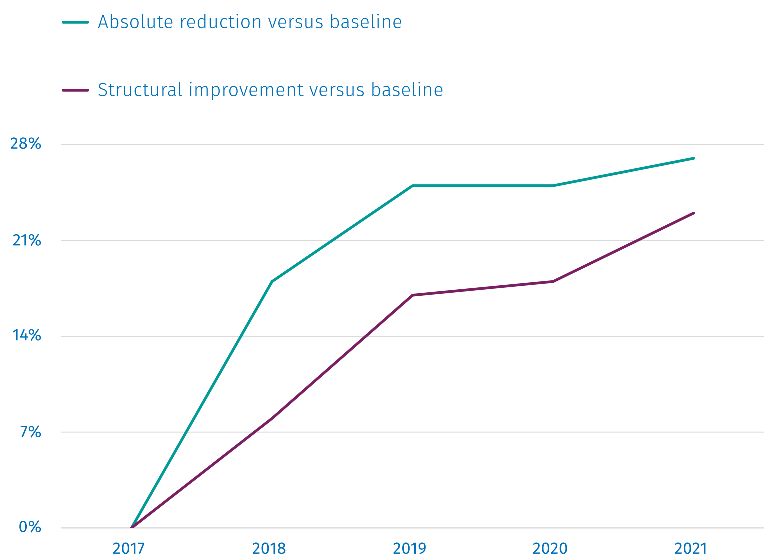
Concrete actions within the agenda are owned by individual Executive Committee members including the development of our **internal carbon price**, advancing our low-**carbon portfolio**, oversight of our **climate advocacy**, and engagements with **climate-focused investors**. Through the agenda, we ensure that the **business opportunities** related to mitigation and adaptation, and the identified **transition and physical risks** of climate change, are addressed. Our climate change strategy received an A rating from CDP in 2021.

Scope 1 + 2 GHG emissions

On track with our scope 1 + 2 target

We are well on track to deliver our increased ambition of 50% **absolute reduction by 2030**. Our scope 1 + 2 market-based GHG emissions improved by 27% (compared to 25% in 2020) versus our corrected 2016 baseline. This was due to a **significant year-on-year GHG reduction** at our existing sites, which compensated for the expected GHG increase from **inorganic growth**. Total scope 1 + 2 emissions were 1.21 million tons of CO_2eq in 2021, a decrease of nearly 40 kt CO_2eq compared to 2020. Our GHG efficiency (year-on-year) improved by 15% in 2021.

Scope 1 + 2 reductions versus corrected baseline

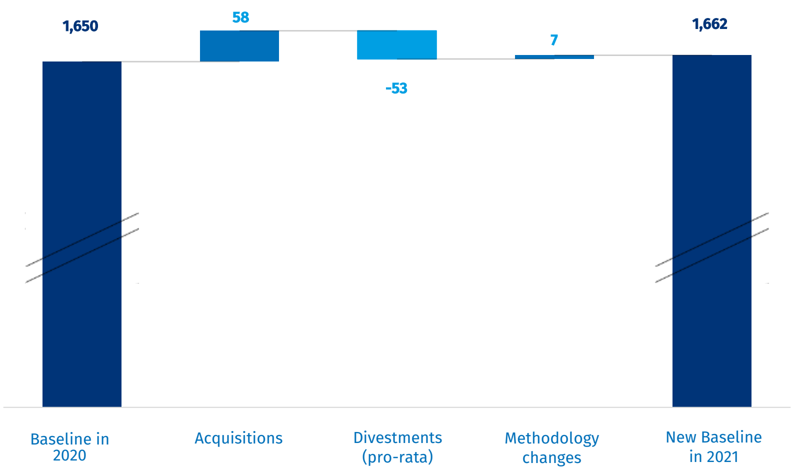


Correcting our baseline in 2021

Our **baseline GHG emissions** figure of 2016 was increased to 1.66 million tons of CO_2eq, due to the inclusion of 14 acquired sites in our reporting scope in the period 2017–2021, the divestment of Resins and Functional Materials and associated businesses (pro-rata), and the impact of methodology changes. Four newly built sites were also added to the reporting scope; however, as they were constructed after 2016, they have no impact on the baseline correction.

2016 GHG Baseline correction

In thousand tons CO_2eq



Our GHG reduction program

In order to achieve the targeted absolute GHG reduction by 2030, we continued our dedicated program to help our key locations implement appropriate **energy transition, including energy efficiency** measures. We use **performance diagnostics** as well as self-assessments that are carried out at key sites to identify **GHG emission reduction opportunities**. The learnings from these sites are shared across all sites to enable further roll-out of improvement projects.

As a result of our progress in these areas, the overall **structural improvement** in our scope 1 +2 GHG emissions increased from ~18% to ~23% from 2020 to 2021.

Energy transition

Our greenhouse gas (GHG) emission reductions are driven by a rigorous energy transition program, consisting of the following elements:

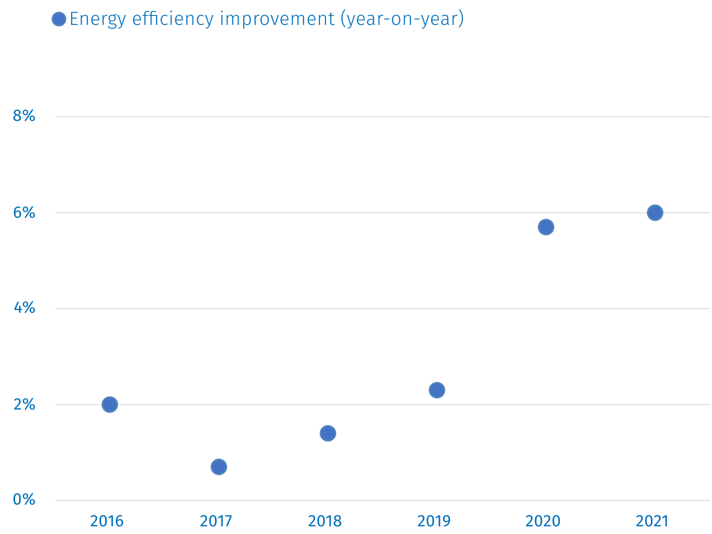
- Reduction of **total energy consumption** through energy efficiency improvement measures
- Energy transition to more **energy from renewable sources**, via increasing the amount of purchased and self-generated renewable electricity, and the amount of consumed renewable fuel and heat
- Driving **smart electrification**, combined with **energy efficiency improvements** that enables a shift to the use of electricity from renewable sources instead of fossil fuels

Examples of projects that we started or implemented in 2021 on these energy transition drivers are described below.

Energy efficiency improvements

Our **energy efficiency improvement** (on primary energy) was 6.0% versus 2020, above our target of an average annual improvement of 1%. This is mainly due to a portfolio of rigorous energy saving projects and product volume and product mix changes.

Energy efficiency[2]



Projects finalized in 2020 began delivering full benefits in 2021, adding up to approximately 20 kt of CO_2eq reduction on the 2021 emissions. Most projects also **deliver additional benefits** such as cost savings or water savings. Examples of projects resulting in lower energy use are **improvements of steam and hot oil systems** (such as leakage repairs, condensate return, heat recovery on furnaces and insulation) at various locations (~6 kt CO_2eq reduction); the **replacement of steam-driven chillers by electricity** (partially renewable) operated in Jiangshan (Jiangsu province, China), contributing ~7 kt CO_2eq; and the replacement of low-efficiency chillers in León (Spain), contributing ~1 kt CO_2eq reduction). Besides improving heating and cooling equipment, we also increased the efficiency of our **compressed air and nitrogen systems** at various locations through leakages repair and equipment upgrades. Another focus area is **heat integration**, which we applied on various locations such as Lalden (Switzerland), Village-Neuf (France) and Dalry (UK).

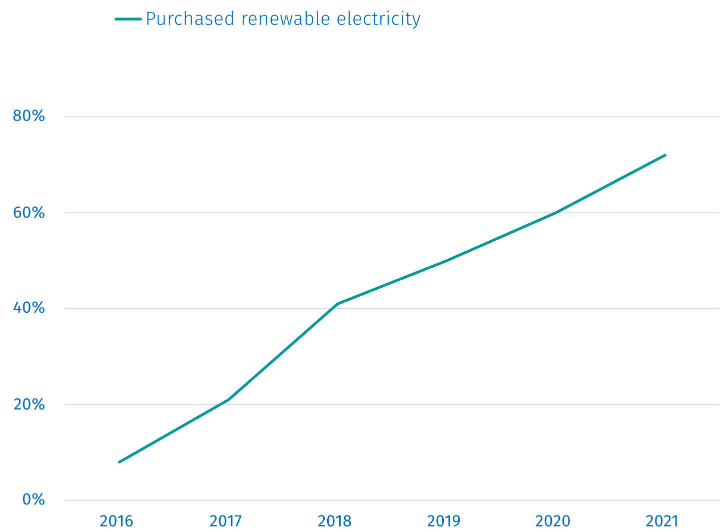
In 2021, we further strengthened our approach to **replace aged and low-efficiency cooling** by state-of-the-art machines, applying – ahead of local legislation – low global warming potential (GWP) refrigerants in, for example, Xinghuo (Shanghai province, China), Jiangshan (Jiangsu province, China), Laiwu (Shandong province, China) and Seclin (France). We installed **solar panels** at our location in El Salto (Mexico) to enable a local transition to renewable electricity. Besides improving the efficiency of our equipment, we also apply innovative solutions with new technologies. An example is the installation of an **industrial heat pump** in Exton (Pennsylvania, USA) where heat from a cooling machine is used to pre-heat boiler feed water.

Renewable energy

We are a proud member of the Climate Group's RE100, comprising leading companies that have committed to sourcing 100% of their **electricity from renewable sources** at the earliest possible opportunity. Our commitment is to source 75% of our electricity from renewable sources by 2030 at the latest and 100% at the earliest possible opportunity.

2 All data presented in Planet are subject to the Non-financial reporting policy.

Renewable Electricity



In 2021, we once again made significant steps toward achieving our purchased renewable electricity target. The percentage of purchased electricity from renewable sources increased globally from 60% in 2020 to 72% in 2021, equaling a GHG emission reduction year-on-year in purchased non-renewable electricity of 52 kt CO_2eq.

Progress on purchased renewable electricity in Europe and North America
For our operations in Europe, we maintained 100% renewable electricity through existing agreements combined with pre-production guarantees of origin (GOs) from the Power Purchase Agreement (PPA) in Spain. The wind park of the latter PPA commenced operations in late 2021 while the solar assets are currently under construction. Furthermore, a new hydro agreement for 2022 was concluded in Switzerland to replace a contract that terminated at the end of 2021.

In the US, a third PPA was concluded in 2021 adding to the two PPAs already in place. The first is already operational and produces electricity from wind, while the assets for the other two are yet to be built and will provide solar-powered electricity. The production from the first agreement combined with pre-production renewable energy certificates (RECs) from the other agreements means we had 100% coverage (of continuing operations) of purchased electricity from renewable sources in the US in 2021.

Progress on purchased renewable electricity in China
For 2021, we concluded two renewable electricity contracts in China. This provided 91% renewable electricity for Laiwu (Shandong province, China), and 32% and 17% renewable electricity respectively for Jiangyin and Jiangshan (Jiangsu province, China). In addition, we concluded purchasing agreements to provide renewable electricity in 2022 for all four sites in Jiangsu province which will cover a significant portion of their demand.

Renewable electricity in the rest of the world
Besides Europe, North America and China, three-quarters of our purchased electricity in Brazil is from renewable sources, and we have several local renewable electricity contracts at smaller sites around the world. The amount of non-renewable electricity in the rest of the world represents less than 5% of our total purchased electricity.

Working on renewable heat
Besides taking significant steps to increase our amount of purchased renewable electricity, we also look for opportunities for the broader use of renewable energy sources. Certain sites across DSM already recover waste streams for production of renewable heat while others are in an exploratory phase. Besides the already concluded sustainable biomass cogeneration project in Sisseln (Switzerland), our hydrocolloids site in Chifeng (Inner Mongolia, China) replaced its self-produced steam based on coal with purchased steam produced from local biomass residues. The Chifeng biomass plant is a cogeneration system that supplies steam to our DSM site and other industrial park users via a long-term contract with

ENN Energy, while the electricity is sold to the grid. By introducing this contract, Chifeng was able to avoid ~25 kt CO_2eq in 2021 (its first fully operational year), of which around 9 kt CO_2eq is a structural improvement from 2020 to 2021.

In alignment with external guidance and experts, we established the foundation for the sustainability criteria of our purchased renewable fuels and heat. Use of biomass for thermal energy is guided by strict sustainability criteria, where the primary focus is on the use of local waste and residues as feedstock for the (co)generation of energy (including organic solid/liquid waste, agricultural residues and forestry management residues). Besides the feedstock used, we also set criteria on carbon payback times, minimum GHG reduction potential and management of soil health, water and biodiversity impacts. The new set of criteria aims to ensure that any step taken in this direction supports the responsible transition toward decarbonized operations and to further expand sustainable renewable energy consumption in DSM.

Scope 3 GHG emissions

Our scope 3 emissions

Our absolute scope 3 GHG emissions amounted to 11.7 million tons of CO_2eq in 2021, which is a decrease of 0.3 million tons of CO_2eq compared to reported emissions in 2020. This is an increase of 0.8 million tons compared to the previous year on a like-for-like basis, taking the divestment of our Resins and Functional Materials and associated businesses into account. The increase was primarily driven by more sourced volume (as a result of increased production volumes) in continued operations resulting in an increase in emissions from Purchased Goods and Services.

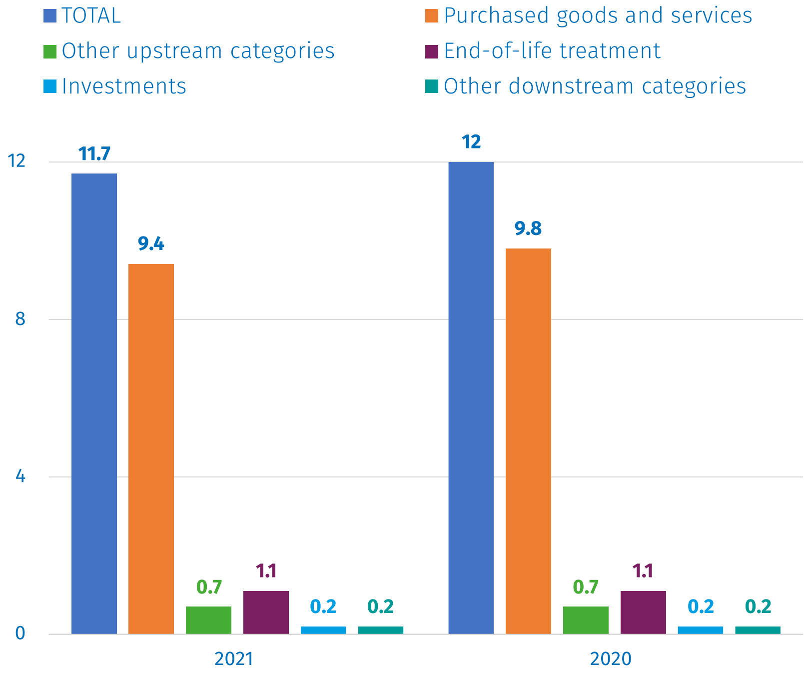
The main scope 3 categories in the 2021 figures remain emissions from the categories Purchased Goods and Services and End-of-Life Treatment of Sold Products, accounting for almost 90% of total scope 3 emissions. End-of-life emissions increased slightly compared to 2020, due to increased sales volumes.

In 2021, one of the highlights in this area was the positive development at DSM Engineering Materials, which benefited from high volumes with a greatly improved carbon footprint of caprolactam from our supplier Fibrant/HighSun. Additionally, the supplier to our Nutrition business with the second-highest level of emissions made a significant investment in order to reduce its emissions through the use of a catalytic conversion technology. The new installation entered operation toward the end of 2021, resulting in some reduction in 2021, and will result in a further significant reduction in emissions as of 2022.

Other scope 3 categories reported comparable figures in 2021 compared to 2020.

Scope 3 GHG emissions[1]

in CO_2eq, million tons



1 Due to rounding, the numbers presented above may not add up to the total scope 3 emissions.

Science Based Targets

The Science Based Target defined scope 3 intensity, expressed in kg CO_2eq/kg produced, decreased by an additional 3% compared to 2020 largely due to the highlights described above.

In our Nutrition business, the inclusion of the learnings from the CO2REDUCE program into the **supplier selection process** resulted in an **improved emission profile** and reductions for several key raw materials. Overall, the sourcing mix of raw materials for the nutrition business showed an **increased carbon intensity** as other more advanced raw materials and ingredients with a higher carbon footprint were also sourced.

Engaging with our suppliers through our CO2REDUCE program

In 2021, the supplier engagement program CO2REDUCE continued to build on agreed roadmaps and progressed as planned. The focus was twofold.

Firstly, we obtained **new insights, datapoints and reduction opportunities** through our collaboration with suppliers for key contributing raw materials. Together with our suppliers, **reduction action plans** were developed based on product carbon footprint data. In 2021, we continued to explore **new opportunities for scope 3 emissions reductions** through multiple supplier emissions plans.

Secondly, we identified **low-carbon opportunities** for several of our products using insights from the CO2REDUCE program regarding **supplier emission plans** and the associated **emissions reduction potential**. This served as essential input into the further development of our business strategy.

One of the ways to inspire suppliers in their reduction journey is through webinars on options for scope 3 emission reductions. In 2021, we organized a **webinar on energy efficiency** with a full value chain approach. A supplier, a customer and DSM shared their approach to energy efficiency with a group of Chinese suppliers active in the engagement program. The webinar (in Mandarin) and the program were well received, and discussions were continued in the subsequent supplier programs.

Calculation and tracking of our scope 3 emissions developed further in 2021 to efficiently **harness and utilize** the insights gained in the program. **Digitalization** of the reporting enabled further transparency and better program steering. The reported emissions reflect the latest insights and are based on an increased share of **supplier-specific emissions** instead of using industry average figures.

We actively share our experiences from the CO2REDUCE program in **peer-group platforms** such as 'Together for Sustainability'. These platforms aim to define **best practices** in supplier engagement and scope 3 calculations within the industry, while also serving as an inspiration to improve the program further.

For the third time in a row, we received a **supplier engagement leadership award** for our CO2REDUCE program, which is a highly esteemed recognition both internally and externally.

Finally, we also develop products for the **circular and bio-based economy** that contribute to further reducing our scope 3 emissions. See Stakeholder engagement and Renewable & secondary raw materials for additional information.

Avoided emissions, supporting our customers with their emissions targets

Our products can enable our customers to transition to a **low-carbon economy** through an inherently lower carbon footprint, or by helping our customers and end-users reduce their own emissions. The latter are referred to as 'Avoided emissions' — **emissions-related environmental benefits** that occur downstream in the **use phase** of our products. While avoided emissions do not count toward our own Science Based Targets or net-zero target, they result in reduced emissions for others in our value chain.

Fruit juice production produces around 800 kg CO_2eq per ton of juice produced. The challenge for juice processors is to achieve **high yields** and ensure **maximum throughput** during peak season, despite the **varying quality** of raw materials. Our Rapidase® range of **fruit processing enzymes** addresses these challenges, delivering a consistent, high-quality, crystal-clear apple juice with a lower environmental impact. Our enzyme solutions portfolio Rapidase® Smart helps our customers to reduce their GHG emissions by 50 kg of CO_2eq per ton of juice produced. This contributed to approximately 37 kt of CO_2eq reduction in 2021.

Over 50% of emissions created globally during **milk production** come in the form of **enteric methane**, released into the atmosphere through the **burping of cows**. Bovaer® suppresses the enzyme that triggers methane production in a cow's rumen; it is the **most extensively studied and scientifically proven solution** to the challenge of burped methane to date. Just a quarter teaspoon of Bovaer® per cow per day consistently reduces enteric methane emission by approximately 30% for dairy cows and even higher percentages (up to 90%) for beef cows. Methane is a GHG that is short-lived but 28 times more potent than CO_2. Bovaer® therefore contributes to a **significant and immediate reduction** of the environmental footprint of meat, milk and dairy products. DSM has available **initial commercial product volumes** for near term market development. In 2021, engineering for a new large plant for Bovaer® in Dalry (UK) has started to facilitate further scale up in coming years.

Climate adaptation

The warming climate is already severely impacting people and the environment – from health hazards to disruptions in water, food, and energy supplies, to damage and loss caused by floods, droughts, and other extreme and erratic weather events. The consequences of climate change will only intensify over the next few decades due to the current and near-term emissions, even if the world achieves the Paris Agreement goal of limiting the global average temperature increase to 1.5°C.

As a complement to our efforts on climate change mitigation – reducing and stabilizing greenhouse gas emissions to fight the cause of the problem – we also deploy an **integrated strategy of climate adaptation** measures. These measures reduce the **vulnerability** of our assets and value chains to emerging climate-related physical risks and prepare us for a **changing business environment**.

Following a similar approach to our activities contributing to climate mitigation, our climate adaptation agenda is organized to:

- *improve* our resilience and future-proof our business
- *enable* societies to adapt better to the adverse effects of climate change, particularly in the context of food systems
- *advocate* for adaptation action, and better collaboration and sharing of information on climate risk between actors in society

As an example of our recent actions, we conducted physical climate risk assessments in 2020—2021. This involved mapping our top 30 sites for five emerging hazards and long-term impacts, using three climate scenarios and three-time horizons. In 2021, we also established and piloted a process in two Business Groups to identify and assess the potential impacts of the different speeds of transition to a net-zero world using the three scenarios used in the physical risk assessment. This work will expand to further Business Groups and continue iteratively in the coming years. More information on our climate risk assessments is provided in Risk management.

Waste & circularity

We are committed to securing the future availability of natural resources and unlocking more value from the limited resources we have. We monitor and improve our own operational impact through resource efficiency improvements, enabling our customers to deliver sustainable and circular solutions, and advocating for the transition to a circular, bio-based economy.

	Aspiration	2021	2020
Renewable & secondary raw materials[1]			
Renewable raw materials (% of spend)		15%	15%
Waste			
Total process-related waste efficiency improvement	at least maintain	7.5%	11.8%[2]
Waste recycled	80-90% in 2021	86%	85%
Non-hazardous process-related waste (kt)		109	109[2]
Hazardous process-related waste (kt)		86[3]	81[2]

1 All data presented in Planet are subject to the Non-financial reporting policy.
2 The 2020 total process-related waste efficiency improvement, non-hazardous process-related waste and hazardous process-related waste have been restated due to a correction in the calculations at multiple locations.
3 The net increase in hazardous process-related waste is due to the impact of acquisitions and divestments (~4 kt). Hazardous process-related waste for our other locations remained in a similar range as 2020.

As the world's population grows, the demand for Earth's resources will only continue to rise. The United Nations has calculated that to sustain our current lifestyles, the equivalent of three Planet Earths would be required by mid-century. Considering our global economy is only 8.6% circular and that planetary boundaries are crossed, it is time to move away from linear production and consumption systems and work together to build sustainable food and production systems. Bridging the gap to a circular economy will support the health of the global population of tomorrow and improve livelihoods and the natural environment. A circular economy for food mimics natural systems of regeneration so that waste does not exist but is instead feedstock for another cycle.

We enable our customers to transition toward a circular and bio-based economy by focusing on five drivers:

- Reduce the use of critical resources throughout the value chain
- Replace scarce, hazardous, and potentially harmful resources with safe and renewable alternatives
- Extend the lifetime of products by means of improved durability or shelf-life
- Design for recyclability
- Recover waste streams by viewing waste as a resource

Renewable & secondary raw materials

We are accelerating our efforts to replace **finite fossil resources** with **renewable (bio-based)** raw materials, as well as **secondary (recycled)** materials. Replacing finite resources with alternative renewable resources can also have environmental co-benefits, such as reducing the carbon footprint of our solutions.

Our progress on renewable & secondary raw materials

The renewable raw materials we use include waste from agriculture, yeasts and enzymes, carbohydrates and natural oils, and acids. In 2021, the share of our spend on **renewable raw materials** remained stable at approximately 15%. Overall volumes of renewable raw materials increased, in line with organic growth.

More information on how we approach sustainable biomass is available in our position paper on Sustainable Biomass on the company website.

DSM Engineering Materials partners with Sympatex Technologies to launch mass-balanced, bio-based Arnitel®

To address growing consumer and legislative demand for lower carbon footprint and more sustainable feedstock, the **sports and apparel value chain** is increasingly integrating bio-based materials into its designs. By offering a new range of mass-balanced, bio-based Arnitel®, DSM Engineering Materials is enabling Sympatex Technologies to meet these demands and offer consumers more sustainable choices. The end-product contains more than 25% bio-based content by weight.

Mass-balance accounting is a well-known approach that has been designed to trace the flow of recycled- and/or bio-based materials through a complex value chain. At all times, we ensure the **transparency and traceability** of our bio- and/or recycled-based solutions through third-party sustainability certificates. More information on how we approach mass-balance is available on our company website.

DSM Protective Materials and industry partners launch coalition to close the loop on Dyneema®

The **cross-industry coalition, CirculariTeam®,** consists of parties from across the value chain that use DSM's Dyneema®, the world's strongest fiber™, in their products. CirculariTeam® aims to **drive the transition** toward renewable bio- and recycled-based resources within its respective industry. This matches our vision and mission of enabling a circular economy and **keeping materials at their highest value** for the longest possible time. CirculariTeam® has identified seven focus areas: reverse logistics, recycle and reuse solutions, improved production efficiency (including waste reduction), separation of waste into material components, design for circularity, regulation, and information-sharing.

DSM Protective Materials and SABIC, a global leader in the chemical industry, started a collaboration to create recycled-based Dyneema®. Through a joint pilot with multiple CirculariTeam® members, the manufacturing and usage of Dyneema® using **mixed plastic waste as feedstock** (via a mass-balance approach) was successfully demonstrated. This is an important step toward the future goal of **fully closing the loop** by delivering Dyneema® made from ultra-high molecular weight polyethylene waste. This collaboration underlines our efforts to accelerate the introduction of a circular economy for materials.

DSM Protective Materials and Clariter partner to pursue chemical recycling solution for Dyneema®-based end-products

DSM Protective Materials is actively pursuing reuse and recycling solutions for end-of-life Dyneema®-based products. To drive technical recycling solutions, DSM Protective Materials and Clariter partnered to test the feasibility of using Dyneema® as a feedstock in Clariter's **chemical recycling process**. Sample products made with Dyneema® were used in Clariter's tests at its pilot plant in Poland. The positive results confirm the **technical viability** of transforming Dyneema®-based end-products into **high-value, industrial-grade, product families** (oils, waxes and solvents) via Clariter's patented three-step chemical recycling process. These can be further used as ingredients to manufacture new end- and consumer products.

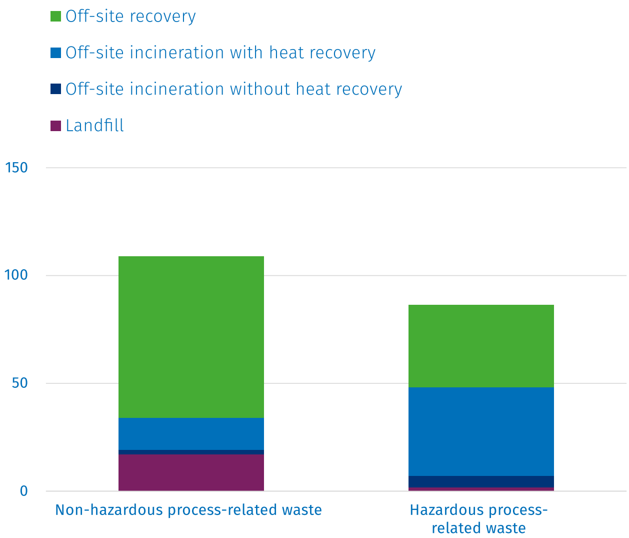
Waste

Our waste management approach consists of a **continuous improvement cycle** concerning our total process-related waste produced and of driving more **circular ways of waste treatment**. Progress is steered as part of dedicated site improvements programs.

Our definition of waste recycled is the percentage of non-hazardous and hazardous process-related waste that is recovered off-site or, if this is not possible, incinerated off-site with heat recovery. In total, this amounted to 169[3] kt out of 195 kt of total process-related waste in 2021. We pay careful attention to meeting local waste management legislation. As of 2022, we will steer the journey on reducing our linear waste management further with a new target of 50% absolute landfill reduction by 2030 versus 2020.

Waste breakdown by type and destination

in thousand tons



In the past year, we made good progress on both drivers, with a 7.5% of process-related waste efficiency improvement from 2020 to 2021 and a percentage of waste recycled of 86% (our ambition level is in the range of 80–90%). This improvement is mainly due to process improvements and waste reduction programs at our main locations. For example, in Freeport (Texas, USA), a waste stream that was incinerated without heat recovery was diverted to incineration with heat recovery and a recycling opportunity for methylene chloride was identified by working with different waste management contractors. In Pecem (Brazil), a partnership was developed to allow composting of organic waste instead of landfilling it.

Our hazardous waste mainly consists of mixed chemicals and solvents. We follow the waste hierarchy to divert hazardous waste from landfill, we minimize hazardous landfill as part of our SHE requirements, and 92% of our hazardous waste is already recovered off-site or incinerated by means of heat recovery. Less than 2% of our hazardous process-related waste is landfilled, due to specific regulatory constraints and countries with limited alternative means of disposal.

Nature & biodiversity

The complex web of life which makes up nature and biodiversity is vital for our Earth's survival. Healthy ecosystems supply us with oxygen, food, clean air and water, and a host of other ecosystem services that help mitigate the effects of climate change by absorbing carbon. Like every business in the world, we depend on nature and ecosystem services. We acknowledge our role to protect biodiversity, and fully support the ambitions of the UN Convention on Biological Diversity.

3 All data presented in Planet are subject to the Non-financial reporting policy.

		2021	2020
Protected Areas[1]			
Sites in or adjacent to protected areas		28%	27%
Sites in registered protected areas		3%	3%
VOC efficiency improvement versus 2015	50% by 2021	85%	80%[2]
Volatile Organic Compounds (VOC, x 1,000 tons)		4.1[3]	3.2[2]

1 All data presented in Planet are subject to the Non-financial reporting policy.
2 The 2020 VOC efficiency improvement and VOC amount have been restated due to a correction in the calculations at multiple locations.
3 The increase in VOC due to acquisitions was ~1.3 kt.

Biodiversity

Biodiversity loss is accelerating, and its key drivers are all connected with human activity. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment, one million of the eight million **animal and plant species** are now threatened with extinction. We address our impacts on biodiversity and **natural ecosystems** through our DSM Responsible Care Plan, especially with our GHG emissions reduction, water stewardship and waste management programs. In 2022, we will launch our new Responsible Care Plan, in which we will also put more emphasis on deforestation-free supply chains for our primary raw materials.

Monitoring biodiversity across our value chain
To manage our own environmental footprint, we **monitor areas of high biodiversity** around our sites. In 2021, 28% of all our production sites in scope were in or adjacent to protected areas or areas of high biodiversity. The increase is due to acquisitions that were added to the reporting scope.

As we are exposed to biodiversity risks in our supply chain, we strive to **responsibly source** high-risk raw materials through recognized certification schemes if available. These raw materials include **palm oil derivatives**, **wood-based materials**, **fish oils** and **sugar**. We have committed to a **deforestation-free primary supply chain** by latest 2030 (Tier 1 supply chain for deforestation-risk crops: sugarcane, direct soy & corn-based products, palm-oil derivatives). More information on how we work with the sourcing of these raw materials can be found in Sustainable Biomass position paper and in our statement on the responsible management of **forest resources** on the company website. Moving forward, we will continually evaluate our impacts on biodiversity along our value chain, and have joined the **Science-based Targets Network's Corporate Engagement Program**, to co-develop and pilot test their guidance.

Supporting our customers on biodiversity
We *enable* our customers to develop more sustainable products through our Brighter Living Solutions. For example, just one ton of our Veramaris® natural algal oil saves 60 tons of **wild fish** from having to be caught to produce salmon feed, protecting marine biodiversity in our oceans.

Taking a position on biodiversity
Lastly, we *advocate* for biodiversity-promoting values worldwide. We are a member of **One Planet Business for Biodiversity** (OP2B) which aims to scale up regenerative agriculture and restore ecosystems to prevent further biodiversity loss through collective member actions. In 2021, OP2B launched the **Regenerative Agriculture Framework**. The framework focusses on protecting and improving biodiversity around farms with a focus on crops, improving and preserving carbon and water retention in soil, as well as leveraging the power of plants, livestock, and agricultural practices, while supporting farmer livelihoods.

For more information, see our position paper on Biodiversity on the company website.

Other emissions to air

Our reporting on 'Other emissions to air' focuses on **volatile organic compounds** (VOCs), as these are the most significant emissions in this area. We continue to report our **nitrous oxide** (NO_x) and **sulfur dioxide** (SO_2) emissions in the five-year summary – sustainability tables and via the company website. However, these emissions are not material due to improvement actions executed in the past.

We continue to work on our VOC emissions

Our objective is to continuously reduce our VOC emissions, aiming at a more than 50% efficiency improvement by 2021 versus 2015. In 2021, our **VOC efficiency** improved compared to 2020. This is mainly due to better understanding of VOC generation, resulting in targeted process optimization. An example is the improvement program at our location in Mairinque (Brazil), where studies were initiated in 2021 to better quantify and understand the **mechanism of ethanol creation** during fermentation. Understanding this process will allow us to optimize the fermentation process parameters to reduce ethanol creation and enable us to test more breakthrough solutions.

Our **absolute VOC emissions** increased compared to 2020. The inclusion of acquired sites in the reporting scope was not compensated by the VOC improvements mentioned above. As this is the first year of reporting for acquisitions, they are not included in the VOC efficiency improvement calculation.

Water stewardship

Fresh water is a finite natural resource that needs to be used and managed in a responsible and sustainable way. Water risks are increasing due to climate change and increased urbanization, impacting food production, nature and biodiversity. Our goal is to ensure the sustainable use of water in balance with the local context and to have safe, available water for all.

	Aspiration	2021	2020
Water Use (million m³)[1]			
Water withdrawal in water-stressed areas[2]		10.9[3]	10.5
Water withdrawal for non-OTC		26	24
Consumptive Use		5.3	4.4
Sustainable water management			
Water withdrawal efficiency improvement	at least maintain	8.0%[3]	-[4]
Water withdrawal efficiency improvement – water-stress sites versus 2020	10% by 2030	7.8%[3]	-[4]
Emissions to water			
COD (kt)		2.0	2.0

1 All data presented in Planet are subject to the Non-financial reporting policy.

2 Water-stress is defined as the ratio of total water withdrawals to available renewable surface and groundwater supplies. We perform water risk screening using WRI Aqueduct Tool and WWF Water Risk Filter to identify water stress sites, which are sites located in an area with >40% water stress currently or in 2030.

3 Water withdrawal in water-stressed areas increased due to the inclusion of acquisitions. These acquired sites are not included in the water efficiency indicators yet as there is no prior reference year available.

4 Water withdrawal efficiency improvement is based on an updated set of indicators and cannot be compared to previous years.

Commitments, policy and governance

DSM is a signatory of the CEO Water Mandate, a UN Global Compact initiative to advance **water stewardship** and drive progress on SDG 6 (Clean Water and Sanitation). We commit to measuring, monitoring and reporting relevant performance indicators for water. We disclose our progress via the CDP Water Security questionnaire. In 2021, our **CDP Water Security** rating improved to an A, in recognition of our ongoing efforts in sustainable water management.

CDP DISCLOSURE INSIGHT ACTION A LIST 2021 CLIMATE WATER

Water security is an integral part of our **risk mitigation and environmental impact reduction strategies**. Our water policy is part of the SHE policy and specifies the goal, governance and management standards on water management.

Impacts and dependencies

Water is not a primary ingredient in our products. Our primary water use is in **utility systems,** as a **process medium** and for cleaning purposes. Water is also used in our upstream supply chain, for agriculture-related as well as industrial raw materials.

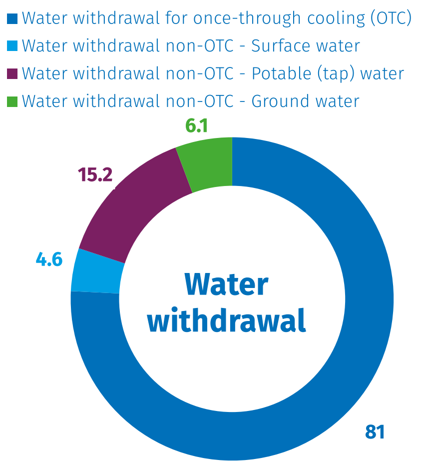
A large proportion of our total water withdrawal (approximately 75%) is used for once-through cooling (OTC) purposes in low water-stress areas. The **risk exposure** and **environmental impact of OTC** are limited. The other 25% of our water withdrawal is for non-OTC purposes – this is the focus of our key performance indicators and targets on water. According to our water risk screening in 2021, 35% of our non-OTC withdrawal is from a current water-stressed area, or a water-stressed area in 2030.

“On World Water Day 2021, we published our updated water target and explained why water has always been an important topic for DSM. We are a signatory to the UN Global Compact CEO Water Mandate and this Report represents our progress on water stewardship.”

Dimitri de Vreeze, Co-CEO, Royal DSM

Water withdrawal

in million tons



Risk management

All sites with water withdrawal materiality and sites in water-stressed areas are required to conduct a site-level water risk assessment (WRA). The frequency of the assessment is specified in DSM's water management standard. In 2021, we reached a WRA coverage of 97%, evaluating four sites newly identified to be in a water-stressed area based on the 2020 water risk screening. For one other site, the WRA was postponed to 2022, as part of the site's overall SHE improvement plan.

Water quality remains the most important water-related risk, often related to meeting business growth or increasingly stringent regulatory requirements. For identified high risks, the site defines short-term measures to address the immediate issue(s) and/or long-term measures including technical projects to reduce pollutant level at source or upgrades of the wastewater treatment facility. For example, we are executing a capacity expansion project for the wastewater treatment plant (WWTP) in Village-Neuf (France), including upgrades to add additional treatment steps.

In our value chain, we monitor the materiality of water for our suppliers and customers through value chain engagement programs, such as Together for Sustainability (TfS).

Water-related targets

We strive to continuously improve water withdrawal efficiency for our production facilities. In early 2021, we announced a context-based water reduction target to improve water withdrawal efficiency in water-stressed areas by 10% by 2030 versus 2020. We started a water reduction program covering 22 sites in an existing or future water-stressed area. Several large sites in water-stressed areas have improved their site-level water balance in 2021, through better leakage detection and prevention.

Some sites have also executed water reduction projects, often in close collaboration with energy reduction projects. For example, in our Xinghuo site (Shanghai province, China), low efficiency (steam-driven) chillers were replaced by new installations, saving 33,000 m^3 of water per year. At our site in Jingjiang (Jiangsu province, China), we installed a new circulating water system for vacuum pumps, saving 100,000 m^3 water per year. Our site in Belvidere (New Jersey, USA) installed a new cooling tower together with the replacement of more than 25-year-old chillers. The improved system contributes to a water use reduction of approximately 4,000 m3 per year. These projects resulted in a 7.8% water withdrawal efficiency improvement in water stressed areas in 2021 (versus 2020).

For effluent management, our sites set site-specific pollution reduction targets, based on business context and current and future regulatory requirements.

Product stewardship

Product stewardship manages and minimizes the environmental, safety and health impacts of substances in our products in line with international regulations from raw materials selection, production process, during use, until end-of-life. It is about knowing the substances we use and produce, being able to explain why we use them, taking the appropriate risk control measures, and sharing this information with relevant and interested stakeholders. We apply a risk-based approach, using safer alternatives whenever feasible, and always when required.

Substances of concern

We apply a risk-based approach, using safer alternatives whenever feasible, and always when required. 'Substances of concern' are substances that fulfill certain regulatory criteria or are listed by recognized organizations for (potential) serious health or environmental risks (such as REACH Substances of Very High Concern). The assessment of the presence of these substances in our end products has been added as a minimum requirement in our new sustainable portfolio steering program (Brighter Living Solutions +). In 2021, we assessed our full product portfolio and the result showed that less than 0.5% of sales contain a substance of concern with a concentration >0.1%.

Regulatory developments

Product stewardship contributes to the value proposition of our business in a world characterized by increasing interest in the health of people, animals, and the planet. It helps the business to be safe and sustainable and also helps mitigate liabilities.

In October 2020, the European Union published, as part of the European Green Deal, the Chemical Strategy for Sustainability with the ambition to move to a **toxic-free environment**. A **challenging regulatory agenda** will be implemented in the coming years. We support the starting-points of the strategy and as part of our advocacy efforts, we engage in discussions to drive reasonable actions and timelines. Furthermore, we share our experiences to shape the concept of '**safe and sustainable by design'**.

Product stewardship roadmap 2021–2024

To future proof ourselves, the following five themes were identified:

- Further increase the **awareness of product stewardship** across the organization
- Improve our **master data management**
- Improve our use of **digital** tools
- Further embed '**safe and sustainable by design'** principles
- Adjust our **governance** when needed

External and internal product stewardship awareness has accelerated due to the **Chemical Strategy for Sustainability** as mentioned above. The need to improve the master data connection over the different functions and the use of **digital tools** is essential and will be pursued in the coming years

Our businesses are now supported by a **single, integrated product stewardship team**, introduced with effect from 1 January 2022. A new product stewardship network will be installed, covering a broader spectrum of the value chain, to further roll out our **product stewardship roadmap**.

For more information on product stewardship, see the company website.

Profit

At a glance

- +42.8% Total shareholder return versus 2020
- +14% Sales from continuing operations versus 2020, with organic sales +8% in Nutrition and +28% in Materials
- +18% Adjusted EBITDA from continuing operations versus 2020, with Nutrition +8% and Materials +60%
- €949 million Adjusted net operating free cash flow from continuing operations, +9% versus 2020
- €858 million Adjusted Net profit from continuing operations, +21% versus 2020
- €2.50 Proposed dividend per ordinary share, an increase of €0.10 compared to 2020

Overall financial results

Strategy

DSM's purpose-led, performance-driven strategy sees sustainability and innovation as key growth drivers of a long-term focused plan, underpinned by ambitious targets across People, Planet and Profit.

In September 2021, DSM announced the acceleration of its strategic journey to become a focused Health, Nutrition & Bioscience company organized, as from 1 January 2022, in three market-focused Business Groups. These will be much closer aligned with their respective customers and, through the integration of activities previously performed by the DSM Innovation Center, will be fully equipped to rapidly develop impactful science-based and market-ready solutions. This structure will also allow DSM to leverage its strong combination of scientific competences and growing portfolio of nutrition and health solutions, as well as harness the latest advancements in digital technology and bioscience.

As a Health, Nutrition & Bioscience company, DSM sees significant headroom for further growth and innovation by building on its unique business model combining 'global products' and 'local solutions' and by adding a third dimension of 'precision and personalization' that captures emerging big data, digital and bioscience capabilities. In the new structure, DSM is also ideally positioned to address the huge environmental and societal challenges which face the global food systems.

DSM maintains ambitious mid-term profit targets as a Health, Nutrition & Bioscience company of mid-single digit % organic sales growth, an above 20% Adjusted EBITDA margin, and high-single digit % Adjusted EBITDA growth, supported by its strong innovation pipeline.

DSM also announced a review of strategic options for its Materials businesses in September 2021, including a possible change of ownership. As from 1 January 2022 these high-quality businesses are managed largely on a stand-alone basis and will continue their existing growth strategies focusing their innovations and business development on the increasing demand for materials that protect the health of both people and planet by adding further bio-based and circular solutions

Financial results

This section includes an overview of the key financial metrics of the company in respect of its continuing operations performance in 2021 and 2020, except where otherwise indicated.

The year 2021 was a transitional year in terms of the evolution of the COVID-19 pandemic, as global demand for goods and services resumed, at pace, but also with a great deal of unpredictability. This put stress on global supply chains, logistics and workforce availability which provided great challenges for economies around the world, giving rise to rapidly accelerating inflationary pressures towards the end of the year. Within this context, Nutrition business conditions remained robust during the year, and Materials saw a very strong recovery.

As a result, DSM delivered strong full year results in a challenging environment, and despite adverse foreign exchange developments throughout most of the year. For continuing operations we reported an 18% rise in Adjusted EBITDA to €1,814 million, driven by another very good performance in Nutrition, supported by continued innovation success and contributions from acquisitions, and a strong result in Materials, which compares with a prior year of weak industry demand impacted by the pandemic. Adjusted net operating free cash flow from continuing operations increased by 9%, compared to 2020, to €949 million.

Nutrition delivered a very good performance, with an 8% increase in its organic sales (all volume-driven) and Adjusted EBITDA, highlighting an excellent operational performance and reliability as a supplier as we successfully navigated the significant supply chain and logistic disruptions throughout the year. Pricing actions were taken during the last period to begin to counter the rapidly rising inflationary pressures that emerged. Animal Nutrition & Health delivered 10% organic sales growth owing to good demand in the underlying animal protein markets, further supported by higher stock levels at customers because of concerns regarding supply chain uncertainty, together with growing inflationary pressures in the fourth quarter. Human Nutrition & Health recorded 5% organic sales growth, building on last year's strong volume growth of 7%, as demand for immunity-optimizing products remained high and food services began to re-open around the world boosting demand in Food & Beverages and Food Specialties. Personal Care & Aroma saw strong growth owing to a recovery in sun and skin care, as travel restrictions eased, as well as strong demand for detergents and disinfectants.

Materials delivered a strong performance with a recovery in Protective Materials and elevated demand for Engineering Materials owing to supply disruptions and raw materials shortages across the industry, leading to a 27% increase in sales (driven equally by volumes and price) and a 60% improvement in adjusted EBITDA. DSM volumes compared to pre-covid 2019 were 6% higher, while markets continued to struggle with semiconductor shortages and supply chain disruptions throughout 2021, highlighting our role in meeting market demand that could not be fulfilled by competitors due to force majeure events.

Adjusted EBITDA margins for Nutrition were 20.6% in 2021, down slightly compared to prior year of 21% owing to inflationary effects in the fourth quarter. Materials saw a strong recovery from weak market environment of 2020, with an Adjusted EBITDA margin of 22.5% in 2021 compared to 17.9% in the prior year, owing to strong operational leverage.

Income statement and key data

x € million	2021	2020	Change
Continuing operations			
Net sales	9,204	8,106	14%
Adjusted EBITDA	1,814	1,534	18%
EBITDA	1,702	1,368	24%
Adjusted operating profit	1,139	929	23%
Operating profit	1,021	662	54%
Adjusted net profit	858	711	21%
APM adjustments	231	(254)	-191%
Net profit from continuing operations	1,089	457	138%
Adjusted net operating free cash flow	949	872	9%
ROCE (in %)	11.1	10.4	
Adjusted EBITDA margin (in %)	19.7	18.9	
Total group			
Net profit for the year	1,680	508	231%
Net profit available to equity holders of Koninklijke DSM N.V.	1,676	506	231%
Adjusted net operating free cash flow	941	955	-1%

Net sales and Adjusted EBITDA

At €9,204 million, **net sales** from continuing operations in 2021 were 14% higher than in 2020 (€8,106 million). **Organic growth** in 2021 was 13%. **Volume development** was 10%, while price/mix had a 3% positive effect on growth compared to 2020. **Exchange rate fluctuations** had a negative impact of -2%, and acquisitions contributed another 3% to sales.

High-growth economies together currently represent 45% of our sales (47% when Africa is included), which is 3 percentage points higher than in 2020. The share of sales in these economies as a proportion of our total sales gives us a well-balanced global footprint.

The **Adjusted EBITDA** (Adjusted operating profit before depreciation and amortization) from continuing operations increased by 18%, or €280 million, from €1,534 million in 2020 to €1,814 million in 2021. Adjusted EBIT (Adjusted operating profit) from continuing operations increased from €929 million in 2020 to €1,139 million in 2021, up 23%.

	Net sales			Adjusted EBITDA		
x € million	2021	2020	% change	2021	2020	% change
DSM, continuing operations	9,204	8,106	14%	1,814	1,534	18%
Nutrition	7,031	6,365	10%	1,447	1,338	8%
Materials	1,935	1,518	27%	435	272	60%
Innovation Center	168	184	-9%	26	21	24%
Corporate Activities	70	39	79%	(94)	(97)	-3%

Net profit

Adjusted net profit from continuing operations of €858 million was up by 21% versus 2020. Net profit available to equity holders of DSM increased by €1,170 million to €1,676 million. Next to the improved adjusted net profit from continuing operations of €147 million, this increase was mainly a result of the net book profit of €570 million on the sale of Resins & Functional Materials and the net book profit of €303 million on the sale of DSM's share in AOC Aliancys. Furthermore, this included the lower other APM adjustments (down by €125 million, mainly due to lower impairments and acquisition costs). Expressed per ordinary share, net earnings from continuing operations amounted to €6.26 in 2021 (2020: €2.64).

Financial income and expense increased by €39 million year on year to a net expense of €106 million. This was mainly caused by the impact of the accounting for renewable energy contracts (a financial expense of €7 million in 2021, compared to a financial income of €27 million in 2020).

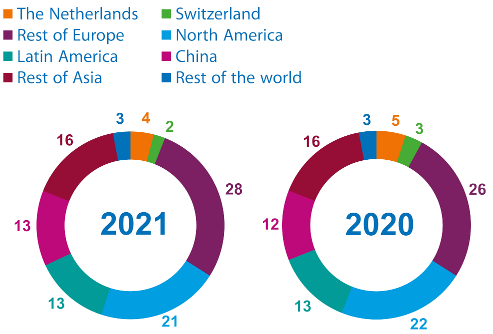
The **total effective tax rate** over taxable result 2021 for continuing operations was 18.4% (2020: 17.9%). excluding APM adjustments this was an increase from 18.5% to 19.2%. This increase was mainly due to uncertainties under local laws, partly compensated by higher tax-exempt income in several countries and the higher tax rate in the Netherlands as of 2022.

Adjustments made in arriving at DSM's Alternative performance measures (APM adjustments)

Total **APM adjustments** from continuing operations for the full year amounted to a profit of €231 million (2020: loss of €254 million), consisting of a loss in EBITDA of €112 million (including restructuring costs of €92 million and acquisition/divestment costs of €26 million), impairments of €6 million, a related tax benefit of €30 million, and a profit of €319 million relating to associates and joint ventures (mainly the profit on the sale of DSM's share in AOC of €303 million).

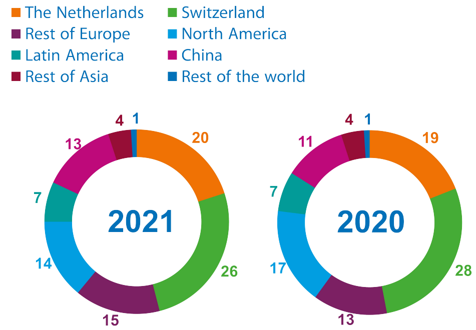
Net sales by destination

in %



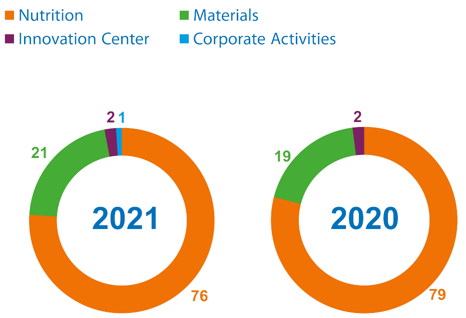
Net sales by origin

in %



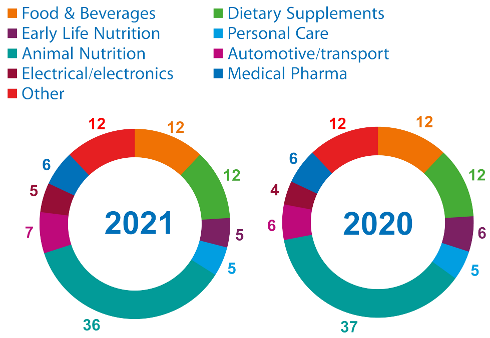
Net sales by business segment

in %



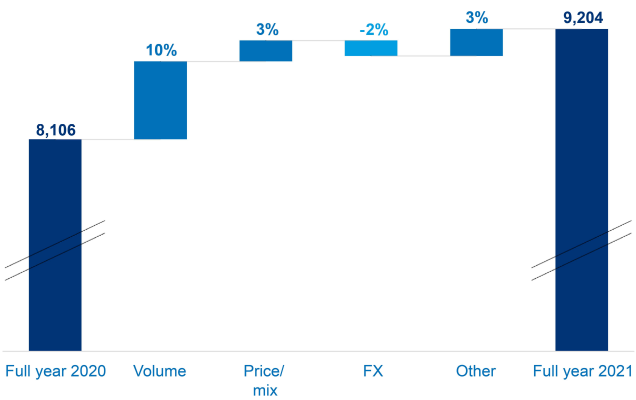
Net sales by end-use market

in %



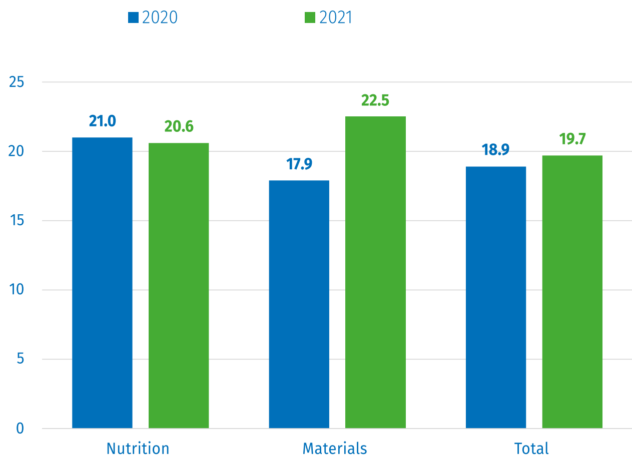
Net sales bridge 2021

x € million



Adjusted EBITDA margin

in %



Cash flow statement

x € million	2021[1]	2020[1]
Cash and cash equivalents at 1 January	871	800
Cash provided by operating activities	1,427	1,494
Cash from / (used in) investing activities	208	(1,482)
Cash from / (used in) financing activities	(984)	83
Effect of exchange differences	39	(24)
Cash and cash equivalents at 31 December	1,561	871

1 The cash flow statement includes an analysis of all cash flows, including those related to discontinued operations.

Cash provided by operating activities of €1,427 million mainly consists of the EBITDA for the year (€2,370 million), excluding the book profit on the sale of Resins & Functional Materials before tax of €640 million (recognized under investing activities). Overall, the full-year operating cash flow decreased by €67 million. This was driven by various items, including increased working capital (see also Consolidated financial statements).

The **cash from investing activities** consisted mainly of the proceeds from the divestments (€1,791 million, mainly from the divestments of Resins & Functional Materials and DSM's share in AOC), partly offset by capital expenditures (-€570 million) and acquisitions (-€704 million, mainly First Choice Ingredients and the Fragrance & Flavours business of Amyris).

The **cash used in financing activities** included the early redemption of the 2022 bond (-€500 million), dividend paid (-€266 million) and the repurchase of shares (-€165 million).

For the **full cash flow statement**, see the primary statement in the Consolidated financial statements.

Balance sheet

The **balance sheet total** (total assets) reached €16.0 billion at year-end (2020: €14.3 billion). Equity increased by €1,910 million, which was attributable to the net profit of €1.680 million, the exchange rate impact on foreign operations of €474 million, offset partly by the dividend payments of -€424 million. Equity as a percentage of total assets increased from 52% to 59%.

Compared to year-end 2020, **net debt** decreased by €1,563 million to €1,014 million, mainly due to the divestments of Resins & Functional Materials and DSM's share in AOC, offset partly by the early redemption of the 2022 bond (-€500 million). The **gearing** at year-end was 9.7%, which was considerably lower than the gearing of 25.6% at year-end 2020.

Capital expenditure on intangible assets and property, plant and equipment amounted to €608 million for continuing operations in 2021 (€563 million on a cash basis), which was roughly the same as the level of amortization and depreciation (excluding the depreciation on leases).

Total working capital from continuing operations amounted to €1,805 million compared to €1,591 million at year-end 2020. This represents 18.7% as a percentage of annualized fourth-quarter 2021 sales (2020: 19.1%), which is below our aspiration of 20%. Cash-wise, the operating working capital (OWC) from continuing operations increased €183 million compared to last year, which is fully attributable to the increased sales. The OWC percentage decreased from 24.6% at year-end 2020 to 24.1% of annualized sales at year-end 2021.

Cash and cash equivalents came to €1,561 million at the end of the year; including current investments, this amounted to €2,050 million (2020: €914 million). Besides the regular cash flow elements, this increase was mainly due to divestments (€1,791 million), acquisitions (-€704 million), redemption of the 2022 bonds (-€500 million), the repurchase of shares (-€165 million) and the paid dividend (-€266 million).

Balance sheet profile

	2021		2020	
	x € million	in %	x € million	in %
Intangible assets	5,310	33	4,440	31
Property, plant and equipment	3,957	25	3,775	26
Other non-current assets	617	4	711	5
Cash and cash equivalents	1,561	10	871	6
Other current assets	4,568	28	4,549	32
Total assets	**16,013**	**100**	**14,346**	**100**
Equity	9,397	59	7,487	52
Provisions	164	1	184	1
Other non-current liabilities	4,089	25	4,493	32
Other current liabilities	2,363	15	2,182	15
Total equity and liabilities	**16,013**	**100**	**14,346**	**100**

“Once again we delivered a performance in line with our ambitious mid-term financial targets. An excellent operational performance saw us successfully navigate challenging market conditions, ensuring we met the expectations of our customers. We are well positioned to counter the rising input costs that we saw at the end of the year.”

Geraldine Matchett, Co-CEO, Royal DSM

Outlook 2022

DSM expects its Health, Nutrition & Bioscience activities to deliver a high-single digit Adjusted EBITDA increase. For the Group, it expects a mid-single digit Adjusted EBITDA increase, with a high-single digit Adjusted Net Operating Free Cash Flow increase. This outlook is based on DSM’s expectation of a stable Adjusted EBITDA in Materials following the strong performance in 2021.

Key business figures at a glance

Our activities are grouped in three clusters: Nutrition, Materials and Innovation Center. We report separately on Corporate Activities. Results presented in this section (and elsewhere in this Report) relate to consolidated activities only (therefore non-consolidated partnerships are excluded).

Net sales

x € million	2021	2020
Nutrition	7,031	6,365
Materials	1,935	1,518
Innovation Center	168	184
Corporate Activities	70	39
Total continuing operations	9,204	8,106
Discontinued operations	264	932
Total	9,468	9,038

Adjusted operating profit (EBIT)

x € million	2021	2020
Nutrition	940	919
Materials	331	168
Innovation Center	4	(17)
Corporate Activities	(136)	(141)
Total continuing operations	1,139	929
Discontinued operations	28	82
Total	1,167	1,011

Adjusted EBITDA

x € million	2021	2020
Nutrition	1,447	1,338
Materials	435	272
Innovation Center	26	21
Corporate Activities	(94)	(97)
Total continuing operations	1,814	1,534
Discontinued operations	28	116
Total	1,842	1,650

Capital employed at 31 December

x € million	2021	2020
Nutrition	9,550	8,305
Materials	1,005	953
Innovation Center	407	436
Corporate Activities	(1)	-
Total continuing operations	10,961	9,694
Discontinued operations	51	863
Total	11,012	10,557

Adjusted EBITDA margin

in %	2021	2020
Nutrition	20.6	21.0
Materials	22.5	17.9
Total continuing operations	19.7	18.9
Discontinued operations	10.6	12.4
Total	19.5	18.3

ROCE

in %	2021	2020
Nutrition	10.6	12.6
Materials	34.1	16.4
Total continuing operations	11.1	10.4
Discontinued operations	-	9.2
Total	11.1	10.3

Capital expenditure

x € million	2021	2020
Nutrition	488	441
Materials	65	63
Innovation Center	2	35
Corporate Activities	53	34
Total continuing operations	608	573
Discontinued operations	6	49
Total, accounting based	614	622
Non-cash items	(44)	(13)
Customer funding	-	(24)
Total, cash-based	570	585
In % of net sales	6.0	6.5

R&D expenditure (including associated IP expenditure)

	x € million		as % of net sales	
	2021	2020	**2021**	2020
Nutrition	257	241	3.7	3.8
Materials	79	73	4.1	4.8
Innovation Center	45	60	24.5	32.6
Corporate Activities	21	11	30.0	28.2
Total continuing operations	**402**	**385**	**4.4**	**4.7**
Discontinued operations	13	60	4.9	6.4
Total	**415**	**445**	**4.4**	**4.9**

Workforce at 31 December

headcount	**2021**	2020
Nutrition	16,091	15,838
Materials	2,885	2,857
Innovation Center	578	579
Corporate Activities	1,804	2,039
Total continuing operations	**21,358**	**21,313**
Discontinued operations	-	1,814
Total	**21,358**	**23,127**

Review of business

Nutrition

At a glance

- €7,031 Net sales versus € 6,365 in 2020 (in millions)
- 20.6% Adjusted EBITDA margin versus 21% in 2020 and versus a >20% ambition
- >55 animal nutrition premix facilities and 15 human nutrition premix facilities
- >€1 billion of our sales in 2021 came from immunity-optimizing ingredients
- 70% reduction in land use with EVERSWEET™ stevia sweetener compared to bio-converted Reb M
- > 70% of our skin care portfolio is > 90% natural in origin

About DSM Nutrition

Our Nutrition business comprises DSM Nutritional Products and DSM Food Specialties. This cluster provides solutions that benefit the health of people and the health of the planet. We are active across a wide range of sectors: animal nutrition & health, food & beverages, pharmaceuticals, medical nutrition, early life nutrition, nutrition improvement, dietary supplements, personalized nutrition and personal care.

We cover all stages of the associated value chains, producing pure active ingredients, incorporating them into sophisticated forms and providing tailored premixes, functional solutions and branded consumer products. Our unique portfolio of products and services is global and highly diversified, serving customers and other stakeholders locally across an extensive range of end-markets worldwide.

With our 'global products, local solutions' business model, we have successfully built a broad, highly integrated and profitable growth business. We are expanding our business model with leading precision & personalization propositions. More detail on our business model can be found in Strategy.

On 1 January 2022, we reorganized our Nutrition business into three market-focused Business Groups: Food & Beverage, Health, Nutrition & Care and Animal Nutrition & Health. These underpin our transformation to a Health, Nutrition & Bioscience company as announced in September 2021. At the same time as announcing these changes, we also announced a series of new quantifiable Food System Commitments. These underpin DSM's overarching commitment to meaningfully contribute to Health for People, Health for the Planet and Healthy Livelihoods and span all three new Business Groups. Through investment in our (bio)science-based innovations, extensive partnerships, and advocacy activities, we aim to help deliver change to ensure accessible, affordable, healthy nutrition and healthy livelihoods within planetary boundaries.

Trends

Our Nutrition business addresses significant trends that influence the health of people and of the planet. In Animal Nutrition & Health, we address the growing requirement for the sustainable production of animal protein. In Human Nutrition & Health, we address the growing demand for (personalized) health solutions, including the need to provide delicious, nutritious and sustainable food and beverage choices for all.

Enabling the sustainable production of animal protein

Animal-based proteins are highly nutritious and form a key part of a balanced, healthy diet. Their consumption is also central to many cultures, and animal-source foods and other animal-source products play an important socio-economic role in those cultures. However, livestock production comes at a cost. This cost is increasingly evident. Rising demand for animal protein is driving up greenhouse gas (GHG) emissions and piling pressure on natural resources. In some cases, this pressure has already transgressed accepted planetary boundaries. The planetary boundaries include the Earth's tolerance thresholds in terms of GHG emissions, biochemical flows, water quality and quantity, land use, and biodiversity. The agri-food sector is one of the major contributors to global GHG emissions, and almost a third of wild fisheries are overexploited. The sustainability of animal protein production is now front and center in the minds of many, with widespread calls for change from the value chain, policy makers and associated stakeholders.

The world's population is projected to reach 9.7 billion by 2050. At the same time, demand for healthier, balanced, and more nutrient-dense diets is increasing — driven not only by the growth of the world's population but also by changing health awareness and consumer expectations. The possibilities afforded by a growing range of plant-based alternatives to protein might go some way to filling this gap. However, demand is still likely to grow as many populations need to raise their animal protein intake to attain a level of balanced, healthy nutrition. Enabling sustainable animal production is therefore of paramount importance.

Our solutions

We strongly believe in and advocate for a radical transformation of animal farming and food systems to ensure a sustainable future. We are convinced that the livestock industry can transform itself from within to deliver solutions to the challenges facing society and the animal protein industry. We are well positioned to play a key role in this transformation. That is why in Animal Nutrition & Health, we focus on the following six sustainability platforms to support our customer, the livestock value chain and other stakeholders to address the environmental challenges facing our planet:

- Improving the lifetime performance of farm animals
- Making efficient use of natural resources
- Reducing emissions from livestock
- Helping tackle antimicrobial resistance
- Reducing our reliance on marine resources
- Improving the nutritional quality of meat, milk, fish and eggs while reducing food loss and waste

To tackle these challenges, we have an extensive existing portfolio structured into Essential Products and Performance Solutions.

Our Essential Products provide our customers with the highest quality core vitamins, premixes and carotenoids that are essential for life and lie at the heart of an animal's healthy development, all delivered in the most flexible and tailored way.

Covering enzymes, microbes and eubiotics, our Performance Solutions combat mycotoxins and tackle antimicrobial resistance. They also optimize gut health, feed conversion and feed efficiency, thereby reducing emissions from livestock. As a result, fewer natural resources, such as land and water, are needed for the production of animal protein production.

In addition to our Essential Products and Performance Solutions, we are also successfully rolling out our methane-reducing feed additive for ruminants, Bovaer® and further extending our capabilities in precision nutrition, building on the foundations of our globally recognized Optimum Vitamin Nutrition™ (OVN™) concept. More information on our solutions for sustainable animal farming can be found in the case study in this Report.

The growing demand for (personalized) health solutions

Despite growing understanding of the central role of nutrition in supporting immune function and healthy growth and development, the world continues to face a wide range of food-related health issues and challenges. In today's world, according to the 2020 Global Nutrition Report, "One in every nine people in the world is hungry, and one in every three is overweight or obese. More and more countries experience the double burden of malnutrition, where undernutrition, coexists with overweight, obesity and other diet-related non-communicable diseases (NCDs). The trend is clear: progress is too slow to meet the global targets. Almost a quarter of all children under 5 years of age are stunted. At the same time, overweight and obesity are increasing rapidly in nearly every country in the world, with no signs of slowing.” A 2021 UN report indicated that conflict, climate change and COVID-19 forced more people into hunger.

While many low- and middle-income countries are still grappling with fundamental problems of food and nutrition security, the world’s food systems as a whole are coming under growing scrutiny. Food poverty exists in even the richest countries of the world, as the continuing prevalence of food banks demonstrates. Governments, NGOs, academia and the private sector worldwide need to develop evidence-based approaches that will deliver affordable, accessible and nutritious diets for all people in all countries at all stages of the life cycle.

The crucial role of nutrition in supporting immune function was thrown into sharper perspective than ever during the COVID-19 pandemic, accelerating the existing trend toward personalized health and nutrition. The pandemic simultaneously accelerated the use of digital communications in delivering these solutions, as consumers increasingly sought to boost their immune systems with the aid of fortified foods and dietary supplements researched and purchased online.

There is growing interest worldwide in personalized nutrition — science-based, data-driven nutritional solutions tailored to consumers' specific health goals and needs. Differences in age, genotype and health status mean that individuals can react in very different ways to the same foods. Personalized nutrition allows individuals to make dietary choices tailored to their specific needs, reducing their exposure to a wide range of non-communicable diseases and helping to lower healthcare costs.

There is also a growing demand for plant-based alternatives alongside traditional meat, fish and dairy products, as consumers search for foods that deliver an authentic eating experience without compromising on taste and texture. Whether for personal, health or sustainability reasons, or from plain curiosity, more and more people are adding plant-based options to their food choices and are adopting flexitarian, vegetarian, or vegan diets. At the same time, the importance of a quality nutritional profile is attracting increasing recognition.

Our solutions

Our portfolio of nutritional ingredients covers a wide range of products essential for good nutrition, food enzymes, nutritional lipids, carotenoids, cultures, human milk oligosaccharides (HMOs) and hydrocolloids. Our capabilities were expanded in 2021 by the acquisition of First Choice Ingredients, a leading supplier of dairy-based savory flavorings, and Vestkorn Milling, one of Europe's leading producers of pea- and bean-derived ingredients for plant-based protein products. Our offering is driven by a mixture of in-house innovation (including partnerships) and targeted acquisitions. We also develop, both in-house and in collaboration with partners, our own offerings in the fields of zero-calorie sweeteners (EVERSWEET™), proteins, skin actives and sun filters.

As a global pioneer in the industrial production of vitamins, we cover the entire range of critical micronutrients, whose efficacy continues to reveal itself in new ways. We have, for example, a new range of Market-Ready Solutions to enable our customers to launch new immunity-supporting products in a matter of months. Rapidly evolving evidence suggests an association between vitamin D levels and sensitivity to viral infections such as COVID-19. In 2021, we launched our immunity-supporting solution ampli-D®, our fast-acting form of vitamin D for dietary supplements.

In the field of meat, fish and dairy alternatives, we offer a range of solutions for analogs that deliver proteins, authentic taste and create succulent, chewy texture. At the same time, because our yeast extracts unlock full umami flavor, producers can reduce the amount of added salt in their recipes, improving the health appeal, while our breadth of vitamins and other micronutrients as well as nutrition science expertise helps producers to improve the nutritional profile of their plant-based offerings. The case study in this Report provides more detail on how we enable tastier, more nutritious plant-based choices for consumers.

Partnerships

We have many partnerships that support and accelerate innovation in Nutrition.

Animal Nutrition & Health

In Animal Nutrition & Health we have, for example:

- The world-leading Feed Enzymes Alliance of DSM and Novozymes, which brings together the complementary competences and technologies of our two companies to deliver feed enzyme innovation to our customers
- Veramaris, our 50:50 joint venture with Evonik, which developed an algal oil rich in omega-3 fatty acids EPA and DHA for aquaculture and pet food without using wild-caught fish
- Our 75:25 partnership Yimante (Hubei Province, China), with Nenter, which strengthens our position in vitamin E, an essential ingredient in our animal nutrition premix solutions

Human Nutrition & Health

In Human Nutrition & Health, partnerships include, for example:

- Avansya, our partnership with Cargill to bring sustainably produced, great-tasting, zero-calorie, cost-effective fermentation-produced sweeteners to market at scale
- Olatein, our partnership with Avril to produce the high-quality, nutritionally complete and sustainably sourced rapeseed protein isolate CanolaPRO®
- Working with Panaceutics and Wellmetrix in the personalized nutrition area; we combine their competences with our world-class nutrition science, products and solutions. We aim to be the partner of choice for dietary supplements as well as food & beverage brand owners that wish to offer personalized and healthy nutrition
- Our partnerships with the World Food Programme (WFP), UNICEF and World Vision to combat hunger and malnutrition

Nutrition performance 2021

Highlights 2021

- Acceleration of our long-term focused growth strategy, including ambitious new Food System Commitments
- Creation of our new Health, Nutrition & Bioscience organization, with three new Business Groups operational as of 1 January 2022
- First steps in commercialization of Bovaer®, within the context of wider awareness of methane as a significant greenhouse-gas contributor
- Expansion of portfolio for plant-based meat and dairy solutions: First Choice Ingredients, Vestkorn Milling, CanolaPRO® facility
- Precision nutrition: Hologram Sciences™ (personalized dietary supplementation), Sustell™ and Verax™ (decision-making tools for farming)
- Expansion of bio-based activities in Aroma Ingredients
- Expansion of animal gut health activities with the novel technology of Midori and the development of a new generation of feed enzymes

Nutrition delivered a very good performance, with 8% volume-driven organic growth. This business cluster demonstrated its superior operational performance and reliability as a supplier as it successfully navigated significant supply chain and logistical disruptions that affected the market throughout the year, strengthening its customer relationships in the process. A 4% contribution from acquisitions, offset by a 2% negative foreign exchange effect, led to a 10% increase in total sales in 2021.

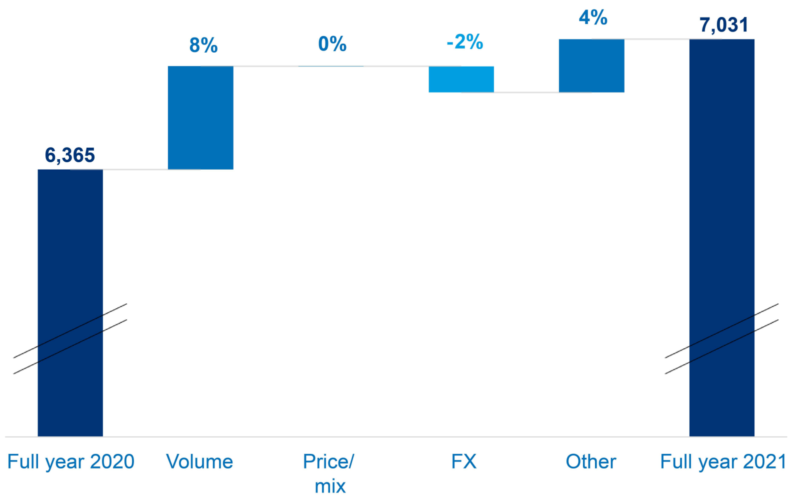
Nutrition reported 8% growth in Adjusted EBITDA largely related to increased volumes, with a 6% contribution from acquisitions and a 4% negative foreign exchange effect. The Adjusted EBITDA margin of 20.6% was slightly down compared to 2020 (21.0%), reflecting some inflationary cost effects toward the end of the year.

x € million	2021	2020
Net sales from continuing operations:		
DSM Nutritional Products:		
- Animal Nutrition & Health	3,502	3,025
- Human Nutrition & Health	2,207	2,143
- Personal Care & Aroma Ingredients	484	404
- Other[1]	122	145
Total DSM Nutritional Products	**6,315**	**5,717**
DSM Food Specialties	716	648
Total Nutrition	**7,031**	**6,365**
Organic sales growth (in %)	8	6
Adjusted EBITDA	1,447	1,338
Adjusted operating profit	940	919
Capital expenditure	488	441
Capital employed at 31 December	9,550	8,305
ROCE (in %)	10.6	12.6
Adjusted EBITDA margin (in %)	20.6	21.0
R&D expenditure	257	241
Workforce at 31 December (headcount)	16,091	15,838

1 ‘Other’ covers pharma and custom manufacturing & services activities.

Net sales bridge 2021

x € million



“Our nutrition business made significant progress in 2021 in terms of both operational performance and the acceleration of our strategic journey. Core to this are our exciting innovation platforms that help drive health for people and planet.”

Dimitri de Vreeze, Co-CEO, Royal DSM

Animal Nutrition & Health

Highlights 2021

- Delivered strong volume-led **organic growth of 10%**, with good underlying demand further supported by higher customer inventory levels
- Acquired **full ownership of Midori USA**, Inc. ('Midori'), a biotechnology start-up developing targeted eubiotics for animals
- Strong demand from ruminants and poultry during second year of COVID-19 pandemic
- Growth of our swine business as Chinese swine value chain recovered from African Swine fever (ASF)
- First regulatory approval in Latin America and positive EFSA opinion in the EU for **Bovaer® methane inhibitor** solution
- Announcement of plans to realize **large-scale production of Bovaer®** in Dalry (UK) by 2025
- **Integration** of **Erber activities** to help deliver leading sustainable animal farming solutions, Including food & feed safety solutions
- Launch of decision-making tools **Verax™** and **Sustell™** to pinpoint health issues and deliver farm-precise sustainability measurements
- Commitment to enable double-digit on-farm **livestock emission reductions** by 2030

About Animal Nutrition & Health

Animal Nutrition & Health serves the **global feed industry** with innovative and sustainable nutritional solutions. A pioneer since the earliest days of feed additives, we draw on the latest science to provide a portfolio that runs from vitamins through carotenoids to cutting-edge mycotoxin risk management solutions, feed safety diagnostic solutions, gut heath technologies, and feed efficiency. We are now developing a new strand to our business that uses independent data analysis and diagnostics to pinpoint on the one hand health issues and on the other environmental footprint, on a completely bespoke basis.

We aim to **make animal farming more sustainable** by reducing greenhouse gas (GHG) emissions caused by animal farming and the consequent pressure on the environment and biodiversity. At the same time, we strive to ensure that farmers can earn a decent living and that people will have access to affordable proteins. Further information on our Animal Nutrition & Health strategy and how we make animal farming more sustainable can be found in Strategy.

Animal Nutrition & Health performance

Animal Nutrition delivered exceptionally **strong volume growth of 10%,** with ongoing good demand in the underlying animal protein markets. This volume growth was supported by customers increasing stock levels given widespread and ongoing supply chain concerns. This stocking effect from customers was exacerbated in the fourth quarter by a sharp increase in energy costs, heightening inflationary pressures.

All species performed well, especially ruminants and poultry, with swine in China fully recovering from the effects of African Swine Fever and aquaculture showing improvement due to the gradual reopening of food services. Regionally, China and Latin America were very strong.

Erber Group, a leader in mycotoxin management and eubiotics, **delivered strong results** in its full first year in DSM, with €328 million sales and total Adjusted EBITDA of €86 million in 2021. The Erber Group activities are now fully integrated in Animal Nutrition & Health.

Strong demand for poultry in second year of pandemic

The poultry industry faced multiple challenges in 2021. These included the continuing impact of **COVID-19,** which caused labor shortages and logistical constraints and consequently drove up corn and soybean prices, and the occurrence of **HPAI (avian or bird influenza)** throughout Europe and Asia. However, the year saw a gradual increase in demand as lockdowns were lifted, economies began to recover, and activity picked up within the food service and hotel industries. The recovery had a positive effect not only on poultry but on all the species we support. We continued to help our customers become more sustainable during this challenging time.

Championing sustainability in egg production

Egg consumption played an important role in keeping the levels of immunity high among the population at large during the second year of the pandemic. Pressure on the supply chain was significant, but we increased sales of key solutions such as **Hy•D®**, **vitamins** and **feed enzymes**. At the same time, our partnership with the **International Egg Commission** allowed us to communicate our sustainability message to most of the major players in the egg industry, positioning DSM as the sustainability leader in this sector.

Response to African Swine Fever (ASF) drives growth

African Swine Fever (ASF) is one of the severest crises experienced by the swine/pork value chain in recent times. Our portfolio of global products and local solutions enabled us to provide tailored support to our customers during the recovery phase of 2021.

Managing ASF has required the entire swine industry to improve biosecurity, accelerate the adoption of technology, and raise professional standards. Despite the smaller size of the overall herd (versus 2020), we benefited from the increased demand for our solutions that these improvements generated.

Further development of sustainable aquaculture solutions

It is widely accepted that **aquaculture** has an important role to play in providing the world's growing population with protein, with demand for salmon and warm water fish being of pivotal importance. Any further growth of the aquaculture sector must, however, be sustainable and must occur within the planetary boundaries.

During 2021, we further developed our aquaculture solutions in the area of **enzymes** for warm water species, expanded (via the acquisition of Biomin) our **health solutions** for cold water and warm water species, and reframed the vitamin requirements for aquaculture species in our **Optimum Vitamin Nutrition™** guidelines. Raising our profile as partners in the development of sustainable aquaculture, the aquaculture component of our 'We Make it Possible' initiative was also launched.

Strong growth in beef, positive trend in dairy

Our activities in the **beef sector** continued to benefit from strong exports from Latin America during the year, especially to China. Volume growth was accompanied by improvements in product quality, as farmers made increased use of our **beta-carotene** to improve fertility rates in cows. There was also increased demand for two other of our products to improve ruminant performance: **CRINA® Ruminants** (a precise blend of essential oils and nature-identical compounds) and **RONOZYME® Rumistar®** (a first-of-its-kind feed enzyme that optimizes corn starch and fiber degradation in the rumen). In the **dairy sector**, by contrast, consumption of dairy products fell during the year, while grain costs for farmers rose. Our dairy business nevertheless increased, fueled by sales of **Hy•D®,** our pure and proprietary vitamin D3 metabolite that improves calcium management and lifetime productivity in dairy cows.

First approvals for Bovaer® methane inhibitor solution

We received full regulatory approval from the Brazilian and Chilean authorities in 2021 to commercialize **Bovaer®** for application in beef, dairy, sheep and goats. We completed the first step in the regulatory approval process in Europe by receiving a positive EFSA opinion on the safety of Bovaer® for dairy cattle. We worked with partners from the dairy value chain to prepare for the introduction of Bovaer® in further markets worldwide. These activities included trials to confirm Bovaer®'s effectiveness in local farming systems and further build up practical farm experience.

In January 2021, we published the results of a trial that had been conducted at the Dairy Campus in Leeuwarden (Netherlands) in cooperation with a consortium representing the Dutch dairy value chain. The results showed a reduction in enteric methane emissions of 27–40% per cow, allowing Bovaer® to gain accreditation.

In Australia and New Zealand, we worked closely with industry and research institutes to develop a **pasture-based application model for Bovaer® (i.e. for cows not raised in feedlots)**. Work conducted at AgResearch and CSIRO successfully investigated several forms and feeding models for Bovaer® in different pasture-feeding systems common in New Zealand and Australia. Trials took place throughout 2021. We also signed a collaboration agreement with Fonterra to accelerate the transition to lower-methane agriculture.

At COP26 in Glasgow, we announced our plans to realize **large-scale production capacity** for **Bovaer®** with a **new plant** at our site **in Dalry (UK)**, supported by Scottish Enterprise. The new plant is scheduled to come on stream in 2025. As emphasized by the First Minister of Scotland at the announcement, Scotland offers a welcoming and supportive environment for innovation and production, and is leading the way for a net-zero future.

Commencement of vitamin E production by Yimante

Following an extensive upgrade to ensure compliance with our safety, health and environmental standards, production commenced at our vitamin E plant in China, Yimante (owned 75/25 with Nenter). Operations started successfully in 2021. With a gradual ramp-up, we reached our targeted utilization rate by the end of the year.

Integration of Biomin

Following our acquisition of activities from the Erber Group in 2020, we integrated Biomin into DSM during 2021.

The result of the Biomin integration is a single, **expanded Animal Nutrition & Health business** with the capacity and capabilities to lead globally in facilitating sustainable animal protein production. This reconfigured business has an unparalleled network of more than 55 premix and additives plants and a unique portfolio of highest-quality core vitamins, premixes, carotenoids, feed enzymes, microbes and eubiotics to address the new challenges facing the animal farming community. With scientific centers of excellence in Switzerland and Austria, and worldwide R&D capabilities and technical expertise, this business combines global thought leadership with the advantages of local knowledge and connections.

Strong increase in sales of Veramaris® algal-based omega-3

Utilization of our Veramaris facility in Blair (Nebraska, USA) further ramped up during the year. Continuous yield and potency improvements further enhanced the value of our **Veramaris® algal oil**, which is rich in both EPA and DHA omega-3 fatty acids. The uplift within the food service and hotel industries sector in 2021 helped generate a quarter-by-quarter increase in sales of Veramaris®, which was reflected in a 150% rise in volume versus 2020 as we expanded into additional geographies and channels, building our presence in **petfood, warm water fish, shrimp and salmonids**.

Enabling the replacement of antibiotic growth promoters (AGPs) in China

In view of the scale of the challenge of transitioning to AGP-free production, the Chinese Ministry adopted a two-phase approach. During phase 1 (July – December 2020), the sale of feeds containing AGPs was still permitted. However, during phase 2 (January – June 2021), the sale of feeds containing AGPs was prohibited, stimulating demand for alternative nutritional solutions to manage animal gut health. Our solutions include **Balancius®**, which supports digestion and gastrointestinal functionality and improves performance, and **VevoVitall®,** which combats the negative activity of micro-organisms on feed.

Launch of Sustell™ and Verax™

In May 2021, we launched **Sustell™** – an intelligent sustainability service that combines the most advanced environmental foot printing calculation tool with expert sustainability, animal production and nutritional knowledge to create tailor-made, practical solutions and business development projects that enhance the environmental sustainability and profitability of animal farming. The launch of Sustell™ underlines our commitment to our strategic initiative '**We Make It Possible'**, which has the objective to drive a robust and achievable global transformation toward sustainable animal protein production.

In the US, we also introduced **Verax™** – a data-driven, blood-based, biomarker-screening service that uses analytics to deliver a deeper and more accurate understanding of the health and performance of animals. This innovative service gives producers and feed integrators quick access to substantiated guidance to improve the nutrition, performance, and sustainability of their operations.

Commitment to enable double-digit on-farm livestock emission reductions

Food systems and the climate crisis are intrinsically linked. Not only is food production and consumption responsible for more than a quarter of all global emissions (IPCC report 2019); it is also highly sensitive to the disruption of the planet's natural ecosystems. Switching to more sustainable production of key animal proteins such as dairy, fish, meat and eggs is essential in order to meet the nutritional needs of the growing global population. As part of our strategic Food System Commitments, we commit to enable double-digit on-farm reduction of livestock emissions by 2030.

Human Nutrition & Health

Highlights 2021

- Organic growth of 5%, following 7% growth in 2020, driven by good conditions in Food & Beverage, Pharma and Dietary Supplements and despite difficult conditions in Early Life Nutrition
- **Expanded offering in personalized nutrition** with the launch of Hologram Sciences, Inc.
- Continued growth in **dietary supplements** and launch of fast-acting vitamin D form, **ampli-D®**
- Expansion of position in **early life nutrition** during Glycom's first full year as a reporting entity
- **Growth in Food & Beverage**, driven by continuing consumer demand for healthy and environmentally sustainable food choices
- **Commitment** to **close the micronutrient gap** for 800 million vulnerable people and support the immunity of half a billion people by 2030

About Human Nutrition & Health

Human Nutrition & Health provides solutions for the early life nutrition, dietary supplement, pharmaceutical, medical nutrition, nutrition improvement (for the most vulnerable) and food & beverage markets. We serve these industries with:

- a portfolio of high-quality products covering vitamins, nutritional lipids, minerals, carotenoids, nutraceuticals, digestive enzymes, probiotics and prebiotics (incl. human milk oligosaccharides (HMOs), as well as active pharmaceutical ingredients (APIs)
- a suite of customized solutions (premix, Market-Ready Solutions and personalized nutrition)
- a range of expert services (e.g., regulatory affairs and formulation expertise, and customized solutions)

Human Nutrition & Health performance

Human Nutrition delivered a good performance with **5% organic growth**, of which 4% was volume-driven, building on last year's strong volume growth of 7%.

Hologram Sciences™, a new wholly-owned DSM company that reaches out directly to consumers, launched its first personalized nutrition solution to North American customers.

Demand for Dietary Supplements remained favorable and **showed good growth**, as consumer awareness of the relevance of immunity-optimizing products remained high. Pharma and Medical Nutrition recorded a very strong performance once again.

ampli-D®, a new vitamin D dietary supplement, was commercialized during the year. This product contains a rapid-acting and potent form of vitamin D, providing fast-working immunity support.

Early life nutrition (ELN) **sales were soft** as this business continued to be impacted by lower global birth rates exacerbated by the COVID-19 pandemic. Our differentiated and value-added portfolio of ELN products provided good market access in China at local Chinese ELN producers.

Glycom, the world's largest supplier of human milk oligosaccharides (HMOs), made good progress in its full first year as part of DSM, with sales supported by the successful launch of our new Culturelle® probiotic supplements with HMOs. Organic sales in ELN applications were flat, but the business now sees activities at customers picking up as business conditions have started to improve in the ELN market.

The **Food & Beverage** segment saw **strong growth** driven by continued elevated demand from at-home consumption and the gradual reopening of economies.

Continued expansion along the value chain

A growing proportion of our revenue comes from **expert services**, such as regulatory affairs and formulation expertise, and customized solutions. Our customized solutions — besides premixes — include Market-Ready Solutions that address diverse health or lifestyle benefits. Our activities in the **personalized nutrition** sector, which is a key pillar in our nutrition strategy, were strengthened by the launch of Hologram Sciences, Inc.

Personalized nutrition: Launch of Hologram Sciences

Personalized nutrition is a key pillar in our Nutrition strategy. In 2021, we launched **Hologram Sciences, Inc.**, a consumer-facing company that will create brands targeting various health conditions. By combining health diagnostics, digital coaching and personalized nutrition, Hologram Sciences brands will provide consumers with more holistic solutions to manage their health.

Hologram Sciences will provide state-of-the-art consumer-facing personalized nutrition solutions that have been clinically proven to address a variety of consumer health needs. An example is the 2021 launch of **d.velop™**, our immune support package which provides consumers with our advanced vitamin D formula ampli-D®, a diagnostic kit, and digital support. As solutions are validated in-market, they will become available to our customers. Hologram Sciences will also work to incubate products with our customers and partners, based on the latest consumer insights.

Continued growth in dietary supplements

The continuation of the COVID-19 pandemic further intensified consumer focus on **immunity and overall health**, highlighting the positive contribution that vitamin D and other vitamins and minerals can make to immune status in the context of viral infections. Against this background, **demand for dietary supplements grew**, further supported by retail- and government-led public health campaigns which maintained high consumer awareness of the relevance of immunity-optimizing products.

We continued to help our dietary supplement customers around the world to launch new immunity-supporting products in record time. Important achievements in this context in 2021 included:

- **Rapid forecasting** of consumer demand
- The **launch in Australia of ampli-D®**, our fast-acting form of vitamin D for dietary supplements. The availability of ampli-D® in Australia, the first market for its launch, followed regulatory approval by Australia's Therapeutic Goods Administration (TGA) for its use in dietary supplements that do not require a doctor's prescription. In addition, we received a **positive opinion** for ampli-D® from the **European Food Safety Authority (EFSA)** – an important milestone on the path to market authorization in the European Union
- Complete new range of **Market-Ready Solutions**
- Immunity probiotics
- **Culturelle®** immune defense product line for both adults and children
- Focus on **e-commerce** and **direct-to-consumer** channels to capitalize on the shift in consumer shopping behavior

Continued growth in Pharma and Medical Nutrition

Our activities in the **pharmaceutical and medical nutrition sectors** enjoyed strong growth in 2021. This was attributable to three factors. In the first place, our expertise in supporting our customers' global regulatory submissions facilitated their growth plans and geographical expansion. Secondly, there was strong market demand for parenteral and enteral nutrition to treat patients at their most vulnerable, including patients hospitalized due to COVID-19. Finally, there was a generally heightened focus on the value of nutrition in medical treatment, which likewise fueled demand for our solutions.

Expansion of leadership position in Early life nutrition (ELN)

The **Early life nutrition** segment remained under pressure in 2021 due to low reported birthrates, a continuing trend exacerbated by the effects of the COVID-19 pandemic. However, the acquisition of **Glycom** in 2020 has helped strengthen our position in ELN, delivering more than 20 new customers for HMOs. Glycom is the world's largest developer and producer of human milk oligosaccharides (HMOs), which also have interesting potential applications within the dietary supplement and pet food sectors. In 2021, we also made progress in obtaining Regulatory approval for HMOs in China, a leading ELN market.

Growth in i-Health

Our **i-Health** products continued to see positive consumer response in the US and China thanks to increased interest in self-care, immunity, and overall health and wellness. The Women's Health portfolio, including the **AZO®** and **Estroven®** brands, delivered growth due to impactful new communication campaigns and new product launches including AZO® Women's Dual Protection Probiotics, AZO® D-Mannose and Estroven® Complete. The AZO® brand was also launched in China, with promising early results.

Our **Culturelle®** probiotic range delivered consumption gains of approximately 10%, driven by a shift to larger pack sizes and new innovative Culturelle® products covering consumer needs in adult irritable bowel syndrome (IBS), Women's Health, Kids' Immunity and Kids' Gummies. The brand was also recently launched in Brazil, where it started to gain traction despite challenging market conditions caused by the COVID-19 pandemic.

Heightened focus on healthy choices drives growth in Food & Beverage

Consumer demand for healthy and environmentally sustainable food choices continued to drive growth in the food & beverage sector. The **lactose-free segment** maintained its rapid growth trajectory, while our broad range of ingredients and solutions supporting **immunity, gut health, and healthy lifestyles** also enjoyed good traction.

Nutrition Improvement

Through our partnerships in the public and private sectors, we continued our efforts to create affordable, aspirational and accessible nutritional solutions that can help keep the world's growing population healthy. As part of our new **strategic Food System Commitments**, we undertook to enable by 2030 the closure of the micronutrient gap for 800 million of the 2 billion vulnerable people worldwide who currently suffer from micronutrient deficiencies. **Rice fortification** has a key role to play in this initiative, as discussed in further detail in the case study in this Report.

'Products with Purpose'

At Vitafoods Europe 2021, we presented a number of our **purpose-led solutions** linked to immunity, gut and brain health and more. Taking center stage were our nutrient premixes and Market-Ready Solutions, including our algal-derived ***life's®OMEGA***. We also demonstrated how brands can leverage the benefits of **HMOs** in the dietary supplement space, as well as previewing our latest vitamin solution, **V-Direct**. Designed to help individuals optimize their health, V-Direct delivers vitamin C and B-group vitamins to the microbiome in the small and large intestines, thus helping to boost gut health. Last but not least, we presented our broad portfolio of solutions for the maintenance of a normal immune system, including **ampli-D®**.

Personal Care & Aroma Ingredients

Highlights 2021

- **Strong growth** driven by recovery in sun and skin care and good demand for detergents and disinfectants
- Launched **Resilient Beauty solutions and ingredients** to deliver sustainable repair and self-care in the face of the COVID-19 pandemic
- **Acquired** flavor and fragrance (F&F) **bio-based intermediates** business of **Amyris, Inc.**, extending our portfolio for F&F and cosmetics

About Personal Care & Aroma Ingredients

Personal Care & Aroma Ingredients offers solutions for customers in the personal care, home care, and fine fragrance markets. Our extensive portfolio includes aroma ingredients such as biobased offerings for aroma, vitamins and natural bio-actives, as well as UV filters, peptides and polymers. Our solutions support the health and beauty needs of an aging population with various skin and hair types around the world, and address increasing concerns around global public health issues such as air pollution and skin cancer.

Personal Care & Aroma Ingredients performance

Personal Care & Aroma Ingredients recorded **strong** volume and organic sales **growth of 21%** in 2021. **Aroma Ingredients** saw continued good demand, with higher retail sales for detergents and disinfectants. **Personal Care** saw a strong recovery in sun and skin care following the subdued conditions of 2020 that had resulted from lockdowns and travel restrictions. In line with our Human Nutrition activities, the business saw a strong end to the year, with 34% volume-driven, organic sales growth in the fourth quarter of 2021.

Successful move into Resilient Beauty solutions

Consumers are increasingly demanding finished products that deliver proven scientific benefits through incorporation of well-known, safe and trusted ingredients. They are also increasingly seeking personalized solutions that support inclusion & diversity by addressing factors such as lifestyle choices or individual needs in skin, sun or hair care products. At the same time, the search for more sustainable products is evolving from a niche interest to becoming a mainstream concern. We responded to these consumer trends with new products and concepts such as our Resilient Beauty proposition.

Our **Resilient Beauty** solutions and ingredients are especially relevant given the stresses and strains of the COVID-19 pandemic. In 2021, we launched **HYA-ACT™**, a powerful range of three hyaluronic acid ingredients offering hydration and anti-ageing benefits to promote both skin recovery and skin protection. The new HYA-ACT™ range complements other recently launched market-ready formulation concepts such as the natural skin bioactive ingredient **ALPAFLOR® ALP®-SEBUM CB** to offset issues caused by wearing face masks; **STIMU-TEX® AS** to relieve and soothe irritated skin; and **TILAMAR® PDO** with **NØØVISTA™**, a high-quality microbiome-friendly, multifunctional natural ingredient designed to reduce formulation complexity.

Acquisition of Amyris, Inc.'s bio-based flavor & fragrance intermediates business

At the end of March, our Aroma portfolio was expanded by the acquisition of the bio-based flavor & fragrance (F&F) intermediates business of **Amyris, Inc.**, comprising seven intermediate products. This acquisition further strengthened our world-leading biotechnology base with F&F intermediate products and increased the scale of our biotechnology activities in nutritional ingredients. It also broadened our offering in Aroma Ingredients with additional biotechnology-based products and reinforced our sustainability profile.

Innovation in sustainable sun care

Our commitment to advancing innovation in **sustainable sun care** is reflected in both our products and our formulations. In 2021, we launched **PARSOL® EHT**, a highly efficient, eco-friendly UVB filter that exemplifies our future-proof, eco-friendly portfolio.

In 2021, we also announced our **partnership with Albéa**, the world's leading cosmetic packaging supplier, to bring sustainable packaging for our sun care formulation prototypes and achieve our vision of delivering a fully sustainable sun care offering to our customers.

DSM Food Specialties

Highlights 2021

- **Strong, broad-based growth**, supported by re-opening of global economy
- **Acquisition of First Choice Ingredients** to further drive growth in biotech-based dairy flavors
- Increasing **market traction** for **plant-based** meat, fish and dairy **alternatives**
- **Acquisition of Vestkorn Milling** to further accelerate growth in plant-based proteins
- **CanolaPRO®** and **EVERSWEET™** innovations making good progress
- **Commitment to reach 150 million** people with nutritious, sustainable plant-based protein foods by 2030

About DSM Food Specialties

DSM Food Specialties is a **leading global supplier** of specialty food enzymes, cultures, probiotics, bio-preservation, texturizing hydrocolloids, sugar reduction, and savory taste solutions to customers in the food & beverage industry in dairy, baking, beverages, and savory. Our ingredients and solutions are widely used to create a broad range of food products, from grocery favorites such as yogurt, cheese and soups to specialized products including gluten-free bread and beer, plant-based meat alternatives and dairy alternatives, lactose-free milk and dairy, and sugar-reduced foods and beverages.

Demand for our products is driven by **five main market trends**:

- enhanced taste and texture experience
- improved health and wellness
- sugar reduction
- more efficient and sustainable production
- reduction of food loss and waste

At the center of it all is the consumer, who increasingly seeks food that is healthy, eco-friendly, and made using recognizable and trusted ingredients.

With **over 150 years' experience** in biosciences and fermentation, we aim to help our customers provide consumers with delicious, nutritious, and high-quality food and beverage options, helping to make existing diets healthier and more sustainable, and giving growing numbers of people around the world access to affordable, quality food.

DSM Food Specialties performance

Food Specialties delivered **strong organic sales growth of 9%**, driven by volumes in the year with good business conditions in its key segments of dairy, baking, brewing and savory, supported by improving conditions in food services. The fourth quarter saw a strong acceleration of volume growth, with 15% organic sales growth, partly driven by customers' preference for higher inventory levels owing to increased uncertainty around global supply chain and inflationary challenges.

Acquisition of First Choice Ingredients

In 2021, we acquired **First Choice Ingredients**, a leading supplier of dairy flavors. With headquarters in Germantown (Wisconsin, USA) and three manufacturing facilities in the vicinity, First Choice Ingredients and its approximately 100 employees have built a leading position in the US taste market as a developer of **clean-label, fermented and cultured dairy flavors** for taste and functional solutions across a wide range of applications.

Our acquisition of First Choice Ingredients will be highly synergetic for both companies. We will be able to further accelerate the company's growth by offering its products outside the US to our broad global customer base and integrating its solutions into our full offering for Food & Beverage customers. Conversely, the acquisition gives First Choice Ingredients access to our own world-leading biotechnology toolbox, fermentation know-how, and global customer relationships.

Growth in fresh dairy and cheese

Health and well-being are a key growth driver across fresh dairy, and we maintained momentum in all categories during 2021. The **lactose-free segment** continues to grow significantly faster than traditional dairy worldwide, as a rising numbers of consumers, especially in the 18–34 years age bracket, are turning to lactose-free options on account of their perceived health appeal. There was good traction for our broad range of ingredients and solutions supporting immunity, gut health, and healthy lifestyles, including our enzymes, cultures and probiotics, as well as vitamins and nutritional lipids from DSM's wider nutrition portfolio. The **plant-based dairy alternatives** market, in particular drinks (i.e., alternative milk), continues to grow vigorously. Our Delvo®Plant portfolio of enzymes, which are part of our integrated solutions offering and help alternative dairy producers tailor the taste and texture of their products, was shortlisted as a finalist at the prestigious **Food Ingredients Europe Innovation Awards**.

In the cheese segment, we continued to grow and gain market share, thanks to a broadened and deepened portfolio resulting from the successful integration of **Royal CSK's specialty dairy solutions business**. Royal CSK was acquired at the end of 2019 and fully integrated in the course of 2021. New product introductions also helped drive growth in this segment.

Baking and Beverages

Increased use of locally sourced grains and raw materials boosted interest in our baking enzyme portfolio, helping in the global effort to protect against resource scarcity by enabling the use of locally grown crops and reducing reliance on imported raw materials. Meanwhile, consumer demand for bread and baked goods with **improved nutritional profiles and health benefits** continued to grow.

The beverages sector continues to seek a **reduced environmental footprint** and production efficiency improvements, while satisfying fast-changing consumer demand for new experiences. Our enzymatic solutions help brewers to boost efficiencies and at the same differentiate their offerings with new and preferred flavors in fast-growing categories including craft, low- and no-alcohol beers, and in hard seltzers.

Continued growth of savory segment in market for plant-based, vegetarian and vegan options

There was strong demand for savory taste ingredients and further rapid evolution of the market for **plant-based, vegetarian and vegan** options alongside traditional meat and dairy choices. This market continues to boom as increasing numbers of consumers adopt a 'flexitarian' approach to meals. We further expanded our market reach with our comprehensive portfolio of integrated solutions for plant-based meat and fish alternatives, leveraging our full range of capabilities in taste, texture and health. There was a marked increase in the number of customers looking to **fortify** their products in support of improved nutritional claims. In November, our first-of-its-kind vegan fish flavor **Maxavor® Fish YE** won a prestigious **Food Ingredients Europe Innovation Award,** coming top of the 'Plant-Based Innovation' category. For more information on the rapidly growing plant-based fish alternatives segment, see the case study in this Report. As part of our strategic Food System Commitments we are committing to reaching 150 million people with nutritious, sustainable plant-based protein foods by 2030.

Demand for our **core savory taste and flavor solutions** based on our yeast extract and process flavor technology platforms remained robust despite a challenging operating environment.

Accelerating growth in plant-based proteins

In December, we accelerated our growth in plant-based proteins through the acquisition of **Vestkorn Milling**. Employing 55 people and based in Tau on the south-west coast of Norway, Vestkorn Milling is one of Europe's leading producers of pea- and bean-derived ingredients for plant-based protein products. The company is well positioned in the alternative protein market, supplying proteins, starches and dietary fibers for plant-based foods, pet food and animal feed. Vestkorn Milling's proteins, starches and dietary fibers are highly complementary to our own portfolio. The acquisition is a further step in our strategy to build an alternative protein business and will provide synergy with our innovative CanolaPRO® rapeseed protein isolate, which will commercially launch in 2022.

CanolaPRO® provides an excellent basis for meat and dairy alternatives as well as for sports nutrition applications, offering versatile functional benefits in terms of taste and texture, as well as being a nutritionally complete protein. Having established the Olatein joint venture to produce and bring CanolaPRO® to market with Avril in 2020, construction continued on the state-of-the-art production facility at Dieppe (France) during 2021 in preparation for commercial introduction by the end of 2022. Promising pre-commercial product development projects on multiple applications including CanolaPRO®-based milk alternatives, creamy spreads, ice cream, ready-to-mix drinks, and protein bars are under way with various food & beverage companies.

Fermentative Stevia gains traction

The **Avansya** partnership with **Cargill** for fermentative Stevia continued to build its sugar reduction business with the sustainably produced **EVERSWEET™** stevia sweetener. The global COVID-19 pandemic has increased societal awareness of the need for more balanced food and nutrition for individuals and populations alike. Reduced and zero-sugar consumer end-products incorporating EVERSWEET™ were successfully launched by customers across our target segments in 2021, with further product development projects initiated. Meanwhile, EVERSWEET™ was approved for use in additional markets in the Americas and Asia-Pacific, with further registrations in the European Union and elsewhere also underway.

Rebound in demand for hydrocolloids

Hydrocolloids are thickeners and stabilizers that dissolve, disperse or swell in water to provide a broad range of important functionalities and physical attributes including gelling, texture, mouthfeel, viscosity and suspension. Our hydrocolloids are primarily delivered in the form of plant-extracted pectin and fermentation-derived bio-gums. Both are used as gelling and stabilizing agents in a variety of foods and beverages. Demand for our hydrocolloids rebounded well in 2021, driven by a stabilization of the gellan gum / biogums market and strong demand for pectin, particularly outside of China. Interest continues to grow in meat and dairy alternative applications for hydrocolloids, along with new areas such as soft-gel capsules.

Materials

At a glance

- €1,935 Net sales from continuing operations versus €1,518 in 2020 (in millions)
- 28% Organic sales development (continuing operations) versus -12% in 2020
- 22.5% Adjusted EBITDA margin (continuing operations) versus 17.9% in 2020
- 100% of Engineering Materials plants in Europe run fully on purchased electricity from renewable resources
- 100% of Engineering Materials portfolio to contain alternatives with >25% recycled and/or bio-based content by weight in final product by 2030
- 2 kt CO_2eq emissions were avoided in 2021 by using of bio-based feedstock for Dyneema®

"In a year of volatile market dynamics, our employees, together with our customers and partners, have demonstrated remarkable resilience and flexibility, resulting in strong business results and growth in our Materials businesses."

Helen Mets, Executive Vice President DSM Materials and member of the DSM Executive Committee

About DSM Materials

Our Materials cluster comprises DSM Engineering Materials and DSM Protective Materials. The cluster produces a high-quality portfolio of specialty materials for global end-markets including electrical components and electronics, automotive, food packaging, medical, personal protection, commercial marine, and apparel. Through our advanced and sustainable solutions, we are meeting demand for safer materials, greater efficiency and improved environmental performance.

Sale of DSM Resins & Functional Materials

In 2021, we completed the sale of our Resins & Functional Materials and associated businesses to the specialty materials player Covestro AG.

Review of strategic options for our Materials businesses

In September, we announced the acceleration of our strategic journey to become a focused Health, Nutrition & Bioscience company. As a result, these two excellent Materials businesses may not be able to achieve their full potential in driving the important industrial shift to a bio-based and circular economy under our ownership. In this context, we initiated a review of strategic options for our Materials businesses, including a possible change of ownership. The Materials businesses will therefore be managed largely on a stand-alone basis.

Meanwhile, we will continue to develop our high-growth and high-margin specialty Materials businesses. These focus on three growth platforms: Improved Health & Living, Green Products & Applications, and New Mobility & Connectivity.

Trends

Addressing pressing global challenges

Our expertise in materials science, combined with our close connection with our customers, helps us develop engineering thermoplastics and high-performance fibers used in products that are central to our everyday lives. These are found in the automotive, construction, electronics, marine, medical equipment, packaging and sports sectors. Through our innovations, we address pressing global issues such as **climate change** and make a major contribution to the **circular and bio-based economy** and **improved health and well-being**, especially in the areas of combating global warming, creating a circular economy, and enhancing safety.

There is a recognized need to keep **global warming** below the critical threshold of 1.5°C. This requires dramatically reducing greenhouse gas (GHG) emissions. Customers and regulators alike are giving increasingly close attention to low carbon footprint regulations, including, for example, the European Green Deal. At the same time, consumer pressure for stronger action on climate is sharply on the rise.

We recognize our responsibility to help facilitate the creation of a **circular economy.** Across the globe, circular-economy concepts such as bio-based materials, end-of-life material recovery and closed-loop solutions are hot topics in sustainability dialogues. Pressure from consumers and regulators is stimulating the development of materials that can drive the transition to a circular economy — materials that are bio-based, recycled-based, reusable and recyclable.

Safety remains an important consideration. People are increasingly aware of the importance of product safety, including safe manufacturing and product stewardship. We offer solutions that eliminate or reduce the use of hazardous substances.

Trends in automotive, electronics, medical and healthcare

An increasing range of applications rely on advanced and high-performance materials in the fields of **automotive, electronics and medical and healthcare** applications:

- In **automotive**, society's urgent requirement for sustainable transportation systems calls for higher-performing materials that enable autonomous, lightweight and more energy-efficient automotive design
- In **electronics**, consumers are increasingly seeking 'smart', connected, customizable products that require high-performance materials in order to enable device connectivity, convenience, and efficiency
- In **medical and healthcare applications**, there is increased demand for medical personal protective equipment (PPE), driven by the effects of the COVID-19 pandemic

Resilience in the face of challenging market conditions

Macro-economic conditions remained challenging in the second year of the COVID-19 pandemic. Global supply chains were very volatile, being significantly affected by supply disruptions and raw materials shortages across the industry. Nevertheless we delivered a strong performance owing to a unique security of supply where competitors were frequently confronted with force majeure situations, which resulted in DSM providing relief supplies to their customers.

Innovation & Sustainability

Our innovations are focused on **delivering sustainable solutions** to meet customer demands for a better environmental footprint and the transition toward a circular and bio-based economy.

Accelerating sustainability value

In 2021, our Materials businesses took further important steps in implementing innovation programs to **reduce the environmental impact** of their operations and to increase the sustainability value they deliver. In line with its commitment to offer a full portfolio of alternatives that contain at least **25% recycled- and/or bio-based content** by 2030, DSM Engineering Materials made specific grades with this profile available for all major product lines in 2021. DSM Engineering Materials accelerated its own carbon footprint and GHG reduction plans and goals during 2021, helping customers futureproof their own portfolios while continuing to differentiate itself in the industry.

DSM Protective Materials, as part of its commitment to sourcing at least 60% of its raw materials from bio-based feedstocks by 2030, made all new personal protection product offerings, as well as all its composite fabrics products for Consumer & Professional Protection, available only in bio-based **Dyneema®**.

Sustainable innovation through partnerships

It takes partnerships to help bring about a **circular and bio-based economy**. We have many partnerships and coalitions that support and accelerate customer-driven sustainable innovation.

Examples of our progress through partnerships in 2021 include the following.

Together with Fibrant B.V., a supplier, DSM Engineering Materials announced a significant reduction of the greenhouse gas (GHG) emissions of caprolactam and high-performance polyamide (PA6) production, resulting in a **new generation of caprolactam** known as **EcoLactam®**. DSM Engineering Materials can now offer its Akulon® PA6 portfolio (produced in Europe and containing **EcoLactam®**) as the lowest, best-in-class carbon footprint PA6 on the market.

Initiated by DSM Protective Materials in 2020, our **cross-industry coalition** of customers, waste processors and recycling companies made significant advances in addressing the recycling of products made with Dyneema® fiber. Working together with the CirculariTeam® members and our supplier SABIC, we produced **recycled-based Dyneema®** from **mixed plastic waste** in a pilot project in both a sailing rope (for our customer Marlow Ropes) and a deep-sea trawl net application (for our customer Gleistein), thus applying circular economy principles throughout the value chain.

Materials performance

Highlights 2021

- **Strong recovery in 2021**, led by good demand levels together with an excellent operational performance in challenging conditions
- Announced **review of strategic options** for our **Materials businesses** in September 2021, including a possible change of ownership
- **Sale of DSM Resins & Functional Materials** and associated businesses
- **Acceleration** of own carbon footprint and GHG emission **reduction plans and goals** in DSM Engineering Materials
- **Strong progress** toward **bio-based and recycled-based alternatives** and customer traction across our Materials cluster

Materials financial results 2021

Materials delivered a strong performance, with a recovery in Protective Materials and a high demand for Engineering Materials due to supply disruptions and industry-wide raw materials shortages. DSM Engineering Materials delivered an excellent operational performance under these very difficult supply chain conditions. Whereas competitors were frequently confronted with force majeure situations, our unique security of supply enabled us to provide supplies to their customers as well as our own.

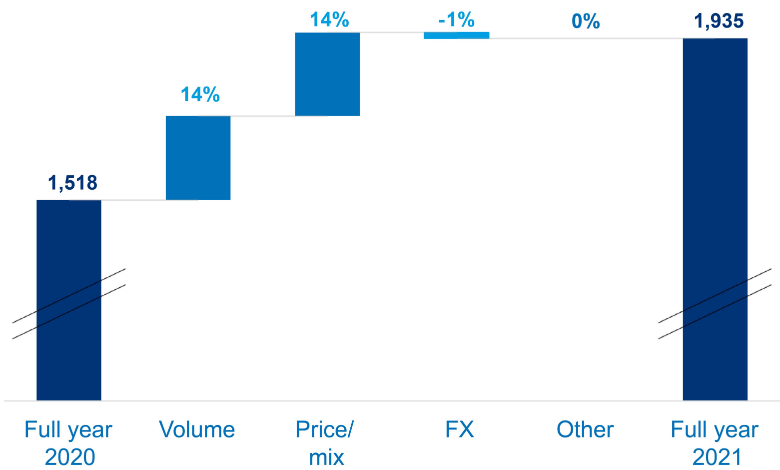
Volumes were up 6% versus pre-COVID-19 2019 while markets continued to struggle with semiconductor shortages and supply chain disruptions throughout 2021. Materials experienced good pricing strength, making it possible to pass on increased costs to customers.

Materials realized very strong 60% Adjusted EBITDA growth, driven by strong volume growth. Adjusted EBITDA margins recovered from 17.9% in 2020 to 22.5% in 2021 due to strong operational leverage.

x € million	2021	2020
Net sales from continuing operations:		
DSM Engineering Materials	1,600	1,217
DSM Protective Materials	335	301
Total	1,935	1,518
Organic sales growth (in %, continuing operations)	28	(12)
Adjusted EBITDA from continuing operations	435	272
Adjusted operating profit from continuing operations	331	168
Capital expenditure	65	63
Capital employed at 31 December	1,005	953
ROCE (in %, continuing operations)	34.1	16.4
Adjusted EBITDA margin (in %)	22.5	17.9
R&D expenditure	79	73
Workforce at 31 December (headcount)	2,885	2,857

Net sales bridge 2021

X € million



DSM Engineering Materials

Highlights 2021

- **Strong volume and price development** in an environment of good demand recovery and supply chain uncertainty
- Made **good progress** on strategy to **accelerate profitable growth** and **strengthened portfolio** in medical and food & water applications
- **Accelerated** own carbon footprint and GHG emissions **reduction plans and goals**
- **Good progress** on enabling shift toward higher-value, sustainable, **bio- and recycled-based alternative materials** with an improved environmental footprint

About Engineering Materials

DSM Engineering Materials provides **high performance specialty materials** that address key market needs in automotive, electronics and consumer goods. Besides serving these three main sectors, we offer sustainable engineering materials also to specialized industries including water management, health/medical, electrical power distribution, food utensils and multilayer flexible food packaging.

Engineering Materials performance

DSM Engineering delivered an excellent operational result in challenging conditions marked by global supply chain disruption and industry-wide raw material shortages.

Accelerating profitable topline growth

In 2021, we effectively applied our strategy focused on **accelerating profitable topline growth** while improving cost and margin management. This strategy also involves further expanding and diversifying into **high-growth, high-value markets** including medical and food & water.

A key highlight from 2021 exemplifying this diversification was the launch of a new family of **medical-grade solutions** addressing growing customer demand for advanced material solutions. These solutions are intended for use in a broad range of medical devices such as medical gowns, respiratory tubes and inhalers, and will help medical device manufacturers improve the quality of care for patients around the world.

In **food & water**, we supply advanced materials for components in faucets, kitchen appliances, food dispensers and food conveyor belts.

The quest for new and more sustainable forms of mobility, including electric vehicles, remained a key driver for our business in 2021. We continued to shift our portfolio toward **higher-value, specialty materials** with advanced grades and improved properties. For example, we increased our number of advanced grades offering high performance in areas as diverse as heat resistance, thermal conductivity, electromagnetic interference shielding, electrical insulation performance, halogen-free flame retardancy, and hydrolysis resistance.

Helping to shape the circular and bio-based economy

We accelerated our own carbon footprint and greenhouse gas (GHG) emission reduction plans and goals in 2021, committing to the following objectives:

- Reducing total GHG emissions – including scope 1, 2 and 3 upstream – and the carbon footprint of our products by 50% by 2030, from a 2016 baseline
- Using 100% renewable electricity in all our production sites by 2025
- Achieving net-zero scope 1 and 2 GHG emissions by 2040 on the way to net-zero across all value chains by 2050

By accelerating our sustainability ambitions, we will help customers **future-proof** their own portfolios and achieve their sustainability targets, while continuing to **differentiate ourselves** in the industry.

In June, we announced that we had successfully **halved the carbon footprint** of Akulon® PA6 in Europe and were also developing GHG reduction roadmaps for Stanyl® PA46 and Arnitel® TPC.

We made strong progress in helping our customers transition to a more circular and bio-based economy with our wide range of **circular and bio-based solutions**.

An example is **Akulon® RePurposed,** which addresses the problem of abandoned and derelict fishing nets. We pioneered an initiative whereby these nets are collected, sorted in South India, and recycled to create this polyamide. This solution is widely used by leading manufacturers of automotive parts, consumer goods, electrical devices, and industrial equipment to create world-class products. The creation of Akulon® RePurposed enables us to simultaneously reduce waste in the oceans, recycle plastic waste washed up on beaches, and drive jobs for local communities. An example of the use of this polyamide includes Schneider Electric's Merten range of sockets and switches. More information on this collaboration can be found in the case study in this Report.

To address growing demand for lower carbon footprint and the use of more sustainable feedstocks in the sports and apparel value chain, we launched **Arnitel® B-MB**, a bio-based mass-balanced thermoplastic elastomer, in partnership with **Sympatex Technologies**. By using Arnitel® B-MB to manufacture its waterproof, windproof, and breathable membranes for sports applications, Sympatex can shift to a more sustainable, lower-carbon footprint solution without having to requalify materials.

DSM Protective Materials

Highlights 2021

- **Good performance** as demand improved versus a 2020 impacted by the effects of COVID-19
- Growing demand for **bio-based Dyneema®** across all markets
- Provided **next-generation armor technolog**y to protect the police force of São Paulo (Brazil)

About Protective Materials

DSM Protective Materials is the world's only global and backward-integrated producer of **ultra-high molecular weight polyethylene (UHMWPE)** products. Our premium product brand, **Dyneema®**, the world's strongest fiber™, is 15 times stronger than steel on a weight-for-weight basis, 40% stronger than aramid, yet light enough to float on water. These characteristics make it suitable for a wide range of critical applications including personal protection, workwear, sports apparel, outdoor equipment, ropes and slings, synthetic chains, and nets for the aquaculture and renewable energy sectors.

In line with our commitment to protect people and the environment in which they live, DSM Protective Materials has developed the first ever bio-based UHMWPE fiber. Sourced from renewable, bio-based feedstock through the mass-balance approach, **bio-based Dyneema®** is our newest innovation in fiber technology – boasting the same performance characteristics as conventional Dyneema® with a carbon footprint that is 90% lower than generic high modulus polyethylene (HMPE).

Protective Materials performance

Volumes improved owing to good demand recovery, which together with pricing strength led to good results.

Growing demand for bio-based Dyneema®

Demand for **bio-based Dyneema®** continued to grow and gain traction across all markets during 2021. In addition to the high interest for biobased Dyneema for lifting slings used in off shore windmill installation, growth was also driven by the decision to include bio-based Dyneema® in two other segments. In Personal Protection, it was incorporated into all new product offerings, while in Consumer & Professional Protection, all composite fabric products were transitioned to bio-based Dyneema®. These changes resulted in the avoidance of approximately 2 kt CO_2eq emissions in 2021.

The journey to making fully circular Dyneema®-based products

In 2021, the cross-industry coalition established the previous year to address the recycling of end-of-life Dyneema®-based products made considerable progress. By working together with the CirculariTeam® members and our supplier SABIC, we were able to produce **recycled-based Dyneema®** from mixed plastic waste as a pilot project in both a sailing rope (for Marlow Ropes) and a pelagic trawl net application (for Gleistein). This not only contributes to preventing valuable plastic from becoming waste and the avoidance of carbon emissions compared to incineration, but also helps preserve fossil resources. This was an important milestone in our journey to making fully circular Dyneema® from HMPE post-production and post-consumer waste.

Ropes with Dyneema® used to salvage the Ever Given from the Suez Canal

On 23 March 2021, the Ever Given, one of the world's largest container ships at 400m in length, became wedged across the Suez Canal after running aground amid high winds, disrupting global trade for almost six days. The ship was refloated after a successful salvage operation involving various parties. Lankhorst's **Lanko®Force ropes made with Dyneema® SK78** were used by tugs from Suez Canal Authority in a joint operation together with Smit Lamnalco, Svitzer, and other stakeholders, demonstrating the high performance and reliability of Lanko®Force ropes made with Dyneema®.

Protecting the São Paolo Police with next-generation Dyneema® UD

Together with body armor manufacturing partner MKU, we provided **next-generation armor technology** with Dyneema® unidirectional (UD) material to protect the police force of São Paulo (Brazil). Numbering more than 100,000 officers, the São Paulo Police is the first law enforcement agency in Brazil to initiate a tender for personal protective equipment based on the latest National Institute of Justice 0101.06 standards for body armor, which provide compliance criteria for the performance and testing of ballistic materials. The hybrid vest solution predominantly utilizes Dyneema® UD material to deliver new levels of performance and protection while simultaneously enhancing user comfort and mobility.

Dyneema® helps Team DSM cyclist to landmark victory

In April, Team DSM rider Lorena Wiebes won the first-ever Scheldeprijs road cycling race for women. She put on a powerful sprint finish to cross the line first, having walked away from a serious crash with only minimal abrasions just weeks previously thanks to the protection afforded by the Dyneema® in her cycling jersey. When combined with a protective base layer, the Team DSM jersey offers cyclists effective abrasion protection at speeds up to 60 km/h, while also reducing the severity of open wounds at even higher speeds.

Innovation

At a glance

- 4 Innovation growth themes
- 4.4% R&D expenditure as a % of sales (continuing operations)
- 19% Innovation sales (continuing operations), in line with our ambition of ~20%
- >1,500 scientists
- 35 laboratories spread across 13 countries
- >100 scientific collaborations

About DSM Innovation Center

For the past decade, DSM Innovation Center has supported the creation of further opportunities for future earnings growth through cultivating purpose-led innovation across DSM. During 2021, we re-set the foundations of an enterprise-wide approach to innovation that focuses, simplifies, and accelerates our ability to create customer-focused, value-adding and differentiating innovation by integrating much more closely with our future end-market orientation in Health, Nutrition & Bioscience. Together, we:

- Ensure the quality of our scientific capabilities, including monitoring and ensuring access to early-stage technologies with disruptive potential
- Partner with leading universities, public-private partnerships, and joint ventures
- Experiment with all possible innovation vehicles, such as R&D, external and internal venturing, and licensing
- Drive the development of a business-anchored innovation pipeline that supports our long-term growth ambitions

Accelerating innovation

Science & Technology

A global, purpose-led leader in bioscience

We see science as a crucial means by which we can support the sustainable transformation of the global food chain, address climate change, and overcome resource scarcity through bio-based and circular solutions. Building on 150 years of expertise, DSM today is a global, purpose-led leader in bioscience, developing a broad range of sustainable solutions for the food, feed, personal care, pharma, nutrition, agriculture, and materials sectors. We are strongly committed to investing in science as a fundamental driver of our future growth.

Making a difference, through bioscience

Our science-based solutions address many global societal challenges and reach billions of people worldwide. For instance, with Maxilact®, a portfolio of acidic and neutral lactase enzymes, we help dairy-manufactures deliver lactose-free products without compromising on taste, texture, and health. Not only does Maxilact® meet the needs of lactose-intolerant customers worldwide, the natural sweetness it unlocks also enables up to 20% sugar reduction in all dairy products.

We have leveraged our bioscience capabilities to develop human milk oligosaccharides (HMOs) identical to those provided in mothers' milk. Correct levels of supplementation can provide health benefits during childhood and beyond. In particular, HMO supplements can support immunity and gut health, as well as cognitive development. Today, our HMO portfolio enables sustainable, cost-effective solutions that can be easily incorporated into different food formulations with less than one-tenth of the environmental impact of other, commonly applied methods.

Scientists and engineers from Veramaris, a joint-venture of DSM and Evonik, have pioneered a way to make marine algae a high-quality and sustainable source of omega-3 for aquafeed. In fact, 1 kg of Veramaris® oil yields the same amount of

DHA and EPA omega-3 as 60 kg of wild-caught fish. With the world's population set to reach 9.6 billion by 2050, the growing demand for omega-3 fatty acids and protein has placed extreme pressure on wild fish stocks. Veramaris can play an important role in meeting that demand, sustainably.

We continue to invest in science and, during 2021, we further strengthened our global network of world-class R&D through the acquisition of First Choice Ingredients. We opened a new **Analytical Center of Excellence** in Tulln (Austria) and laid the foundation stone of our future state-of-the-art **Health & Nutrition Innovation Campus** in Kaiseraugst (Switzerland). These facilities will help us accelerate innovation in the field of bioscience with the application of digital technology in modern, collaborative research workplaces, especially in support of the extension of our business model to personalization & precision.

Our competences, science network and collaborative approach

Underpinning all of this is our unique set of **scientific capabilities,** which are key to our continued success and will remain our foundation for growth. Our ongoing investment ensures that we have the right combination of skills, technologies and partners to develop disruptive innovations to meet specific unmet market needs. At the end of 2021, we had 35 **laboratories** spread across 13 countries, and our **science network** comprises over 1,500 scientists employed by DSM, including 20 professors and academic associates, distributed around the globe.

These employees co-operate with more than 100 organizations including academic, **institutions** and other R&D partners worldwide, both in public-private partnerships and in academic collaborations such as with the Cape Peninsula University of Technology in South Africa, Iowa State University in North America, and Wageningen University & Research in the Netherlands.

Our open and collaborative approach increases our scientific scope and helps us make joint scientific contributions to address significant scientific and societal challenges. We participate in more than 40 industry networks and more than 70 public-private partnerships (PPPs) relevant to our innovation growth themes.

Future-proofing our R&D and innovation efforts

To reinforce our worldwide position as **a leader in bioscience** and create greater value for DSM and society at large, we continued to align our science and innovation organization with the changing needs of the market as well as with the increasing speed of technological and scientific advances in the world.

During 2021, we designed a new science and innovation organization, effective from 1 January 2022, that better reflects our future end-market organization in Health, Nutrition & Bioscience. This includes simplifying how we operate and integrating our various R&D centers, including the Innovation Center, more closely with our Business Groups. With priority-setting and resource allocation done by those closest to the customer, we will have full alignment from ideation to commercialization, and the best opportunity for our R&D to make a difference. Above all, we have created an environment where our scientists can thrive and focus on doing the right things faster and help realize our collective mission to help address some of the world's biggest challenges.

“By working together as a DSM-wide innovation force, we can create even bigger impact for people, for planet and for our business.”

Patricia Malarkey, Chief Innovation Officer and member of the DSM Executive Committee

Digital transformation of our R&D capabilities

Advanced digital technologies are more and more critical for capturing new opportunities, and we continue to increase our investments in the digital transformation of our science and innovation capabilities such as in **artificial intelligence (AI), big data, deep learning and modeling**, as well as extending **lab automation**. These investments are accelerating our core processes, increasing our operational efficiency, and improving the speed of our innovation processes and delivery.

For instance, together with Delft University of Technology (Netherlands), we started a research program in 2021 aimed at long-term innovation in the field of e-biorefinery concepts. The goal is to develop new insights and methods for using gases, such as carbon dioxide, hydrogen and carbon monoxide, as feedstocks for industrial fermentation processes, preventing these gases from being released into the atmosphere. Another example is our translational science program, which will see the creation of a dedicated unit in 2022 combining digital and analytics specialists who will work in cross-functional teams drawn from across R&D, Innovation, Regulatory, IP, Marketing, Sales, and other functions, to work collaboratively on data-driven, market-valued, customer-centric innovations.

R&D expenditure (including associated IP expenditure)

x € million	2021	2020
Nutrition	257	241
Materials	79	73
Innovation Center	45	60
Corporate Activities	21	11
Total continuing operations	402	385
Discontinued operations	13	60
Total	415	445
R&D expenditure as % of net sales (continuing operations)	4.4	4.7
Staff employed in R&D activities (continuing operations)	1,522	1,653

The Bright Science Awards

We continue to recognize, reward and nurture scientific talent outside DSM. Our Bright Science Awards programs reward excellence in PhD research in areas of particular relevance to our strategy and helps participants make the vital connection between scientific achievement and commercial and industrial success.

The Scientific Advisory Board

We regularly connect with our Scientific Advisory Board of internationally recognized experts from leading universities around the world. The supervision of this Board changed significantly during 2021, working directly with our Chief Innovation Officer to challenge and review our scientific work across the company, provide valuable perspectives and insights, and give advice on trends and upcoming technologies. Following the acceleration of our strategic journey in 2021, we made changes to the composition of the Scientific Advisory Board to better reflect our future as a focused Health, Nutrition & Bioscience company. This process was ongoing at the end of the year with new appointments anticipated in 2022.

Member	Background
Thomas Hankemeier (m)	Professor of Analytical Biosciences at the Leiden Academic Center for Drug Research at Leiden University (Netherlands). Medical Delta Professor of Translational Epidemiology at Erasmus MC, Rotterdam (Netherlands). Co-founder of MIMETAS, the first organ-on-a-chip company. He has co-authored more than 320 publications and holds over 10 patents. Nationality: German.
Kirk Klasing (m)	Distinguished Professor of Animal Biology in the Department of Animal Science at the University of California, Davis (USA). He is an extensively published expert on poultry nutrition and immunology, with more than 250 peer-reviewed publications, 10 edited books and nine awards to his name for his work in animal biology. Nationality: American.
Chris Voigt (m)	D.I.C. Wang Professor of Advanced Biotechnology in the Department of Biological Engineering at Massachusetts Institute of Technology (USA). He is the co-director of the Synthetic Biology Center at MIT and the co-founder of the MIT-Broad Foundry. He is also Editor-in-Chief of ACS Synthetic Biology. Nationality: American.

Internal and external venturing

The Venturing and Innovation Business Building organization creates and develops **new business and innovation opportunities** for DSM through (external) investments in start-ups across the globe, (internal) venture-building within DSM, and innovation partnerships with other corporate entities.

External venturing

The DSM Venturing organization is focused on **investing in new external ventures** and supporting start-up companies already in our investment portfolio. We made eight new investments in 2021, 13 follow-on investments in 12 portfolio companies, and generated several leads for collaboration between start-ups and businesses at DSM. By the end of the year, our portfolio included 38 start-ups (2020: 35). For more information, see the DSM Venturing website.

Internal venture-building

We evolved how we **build and scale innovative ventures** within DSM in 2021 by means of a revised venture-capital approach with dedicated entrepreneurial teams, simple startup-style board governance, and milestone-based funding rounds.

An example of this approach is the creation of **Hologram Sciences, Inc.** This venture incorporates our activities in personalized nutrition in the US within the framework of our Human Nutrition & Health business. Hologram combines proven science with new technology to create health diagnostics, digital coaching and personalized nutrition solutions that help people optimize their health and well-being.

IP & Licensing

IP & Licensing is a global group of qualified IP professionals who **protect DSM's innovations** by securing patents and trademarks. This group also includes certified licensing professionals who offer expertise for intellectual property-intensive deals across all DSM businesses, including joint development agreements, technology acquisitions and sales, and in-, out- and cross-licensing deals. DSM filed **239 patents in 2021**. This reflects our continued focus on innovation projects with the highest potential for business impact.

DSM Innovation Center performance 2021

Sales were 9% lower compared to 2020, as DSM Biomedical continued to be impacted by the postponement of elective surgeries due to the COVID-19 pandemic and by negative foreign exchange effects. **Adjusted EBITDA** was **up versus 2020**, driven by higher technology licensing income.

x € million	2021	2020
Net sales from continuing operations	168	184
Organic sales growth (in %, continuing operations)	(4)	1
Adjusted EBITDA from continuing operations	26	21
Adjusted operating profit from continuing operations	4	(17)
Capital expenditure	2	35
Capital employed at 31 December	407	436
R&D expenditure	45	60
Workforce at 31 December (headcount)	578	579

DSM Biomedical

DSM Biomedical is committed to solving some of our world's **key healthcare challenges** through sustainable science and is a trusted partner to the global **medical device and pharmaceutical industry**, enhancing the quality and delivery of healthcare through innovative and sustainable biomaterials. As of 1 January 2022, DSM Biomedical will be part of the Health, Nutrition & Care Business Group.

Our top innovations and partnerships in 2021

In 2021, DSM Biomedical and Chemelot InSciTe research consortium started the first-in-human clinical trial for novel scoliosis treatment. The research consortium, consisting of physicians and researchers from Maastricht UMC+ (Netherlands) and Eindhoven University of Technology (Netherlands), works to reduce the severe complications scoliosis patients routinely suffer from corrective surgery.

We added ComfortCoat® Single Layer coating to our expanding portfolio of innovative, next-generation hydrophilic coatings. Our clinical partners in vascular interventions are achieving best-in-class particulate performance and significant operational efficiencies, now in a more sustainable way.

Our customer Svelte Medical achieved premarket approval for its SLENDER IDS sirolimus-eluting coronary stent-on-a-wire Integrated Delivery System, which contains DSM Biomedical's polyester-amide (PEA)-based drug delivery material. Coronary stenting has been established as the standard of care for keeping the heart's coronary artery open and is saving many lives.

Our innovations in both our polyurethanes and polyethylenes materials platforms have enabled our partners to successfully progress through safety trials and to progress into human clinical trials for next-generation structural heart devices (including transcatheter valve replacement).

DSM Bio-based Products & Services

DSM reached an agreement with International Flavors & Fragrances, Inc.'s (IFF) Health & Biosciences division in June 2021 for commercializing DSM's advanced yeast technology for first-generation ethanol production. Under the terms of this agreement, DSM's *e*Boost® product line became part of IFF's XCELIS® Ethanol Solutions platform, completing our licensing strategy and subsequently the discontinuation of DSM Bio-based Products & Services.

DSM Advanced Solar

DSM successfully completed the sale of the coatings activities of DSM Advanced Solar to Covestro AG in April 2021 as part of the sale of DSM Resins & Functional Materials and related businesses. This was followed by the successful sale of the remaining DSM Advanced Solar activities to Worthen Industries, Inc. in June 2021.

Corporate Activities

Any consolidated activities that are outside the three reporting clusters are reported as Corporate Activities. These comprise operating and service activities, as well as a number of costs that cannot be allocated to the clusters. While this segment reports net sales to third parties from its service units, it normally has a negative operating result.

Corporate Activities includes various holding companies, regional holdings and corporate overheads. The most significant cost elements are corporate departments and the share-based compensation for the company.

Corporate Activities

x € million	2021	2020
Net sales from continuing operations	70	39
Adjusted EBITDA	(94)	(97)
Adjusted operating profit	(136)	(141)
Capital expenditure	53	34
R&D operating expenditure	21	11
Workforce at 31 December (headcount)	1,804	2,039

DSM Insurances
We retain a limited part of our material damage and business interruption and (product) liability risks via our captive insurance company. In 2021, the total retained damages were €27 million.

Corporate Research
The function of the Corporate Research Program (CRP) is to develop key Science & Technology competences. Falling under the responsibility of the Chief Technology Officer, the CRP typically funds competence development programs with a longer time horizon than those run by the Business Groups. It also focuses on competences that have a broader relevance for the company. The CRP additionally supports Science & Technology programs that are carried out with external parties and programs covering relevant new trends.

Share-based payments
Executives participate in the Long-Term Incentive (LTI) scheme. This links their compensation to the long-term interests of our company's stakeholders. It also provides a vehicle for the attraction and retention of suitable employees. As shares / share units have become more prevalent in the market, we replaced stock options with shares / share units in 2017. This resulted in better alignment with the LTI vehicle already in place for the Managing Board and the Executive Committee. The use of shares / share units also targets yet closer alignment with the interests of our stakeholders. For detailed information, see Note 27 of the Consolidated financial statements.

Reporting policies

Financial and reporting policies

As a basis for, and contribution to, effective risk management and to ensure that we are able to pursue our strategies, even during periods of economic downturn, DSM aims to retain a strong balance sheet and limit our financial risks.

Our strategy has ambitious targets, as outlined in Strategy. Within the context of this strategy, we aim to maintain a strong investment grade and a strong long-term credit rating.

Most of our external funding needs are financed through long-term debt. Debt covenants are not included in the terms and conditions of outstanding bonds and financing arrangements. We aim to spread the maturity profile of outstanding bonds in order to have adequate financial flexibility.

An important element of our financial policy is the allocation of cash flow. We primarily allocate cash to investments aimed at strengthening our business positions and securing stable, and preferably rising, dividend payments to our shareholders. Remaining cash flow is used for acquisitions, targeting investments predominantly in Nutrition and in line with our strategy. Share buy-backs will be considered in the absence of value-creating M&A opportunities.

Dividends are paid out in cash or in the form of ordinary shares at the option of the shareholders, with a maximum of 40% of the total dividend amount available for stock dividend.

In order to cover our commitments under the dividend policy and under management and employee option and share plans, we buy back shares insofar as this is necessary and feasible.

We continuously monitor and assess risks arising from currency exposures. It is our policy to hedge 100% of the currency risks resulting from sales and purchases at the moment of recognition of trade receivables and payables. Additionally, we may opt to hedge currency risks from firm commitments and forecast transactions. The currencies giving rise to these risks are primarily the US Dollar, the Swiss Franc, the Brazilian Real and the Chinese Renminbi.

We acquire businesses and enter into partnerships that add value in terms of technological or market competences. In addition, these businesses and partnerships are required to contribute to our cash earnings per share, as well as our profitability, sustainability and growth requirements. In the case of small innovative growth acquisitions, we consider their potential to contribute to these requirements in the future.

Our policies in the finance function are strongly oriented toward solidity and reliability of reporting, as well as the protection of cash flows. The finance function also plays an important partner role to the business and supports business steering.

For detailed information on our tax policies, see Taxation at DSM on the company website.

Non-financial reporting policy

Reporting policy and justification of choices made

In this Integrated Annual Report, we report for the calendar year 2021. The company reports on People, Planet and Profit information in such a Report on an annual basis. The previous DSM Integrated Annual Report was published on 2 March 2021. We publish our Report exclusively in a digital format. It is available as an online version and as a pdf.

In the Report by the Managing Board section, we explain our vision and policy with respect to sustainability practices and report on our activities in this field during 2021. In addition to disclosing data and developments in the categories of People, Planet and Profit, we also report on the global societal megatrends that drive our strategy, sustainability governance framework, stakeholder engagement activities, and management approach on material topics.

We are in favor of convergence in reporting standards and frameworks, moving to a single accepted non-financial reporting standard. Currently, we recognize and participate in a number of initiatives that are driving toward that goal.

We proactively seek out the views of key stakeholders on issues of material importance to the company and assess to what extent sustainability aspects become material to our company and our stakeholders. In the event that specific indicators become relevant to the company's sustainability performance, appropriate actions are taken that allow the necessary data to be collected in order to disclose progress in the future.

The basis for the non-financial reporting in the Report by the Managing Board is Book 2 of the Dutch Civil Code. Non-financial reporting requirements are further defined in the EU Non-financial Reporting Directive (2014) and the EU Corporate Sustainability Reporting Directive (in effect as of 2023), including the EU Taxonomy (partially in effect as of 2022) and the proposed EU sustainability reporting standards (expected to be effective of 2023). It is also based on voluntary non-financial reporting guidelines such as:

Global Reporting Initiative (GRI)

This Report has been prepared in accordance with the GRI Standards: Comprehensive option. A detailed overview of how we report according to the GRI Standards comprehensive indicators, including a reference to relevant sections in this Report, is provided in the GRI Content Index.

UN Global Compact

We have been a signatory to the UN Global Compact since 2007 and commit to annually report on progress in implementing The Ten Principles of the UN Global Compact in the areas of human rights, child and forced labor, the environment and anti-corruption. This Report is our Communication on Progress 2021, submitted to the UN Global Compact office. Our Code of Business Conduct, our Sustainability, Human Resources, and Safety, Health and Environment (SHE) policies, and our Supplier Sustainability Program are the foundations on which we apply the standards of the Global Compact.

UN Sustainable Development Goals (SDGs)

We have also aligned our strategy with the Sustainable Development Goals (SDGs). We are familiar with the opportunities and responsibilities that the SDGs represent for our business. Based on our mapping, we believe that we contribute to all of them, and have chosen to focus on the goals which most closely align with our strategic ambitions. In this Report, we continue to include the SDGs into our reporting process, for example by mapping SDG reporting priorities in our value creation model, our material topics, and the solutions that we highlight.

The Taskforce on Climate-related Financial Disclosures

The recommendations from the Taskforce on Climate-related Financial Disclosures (TCFD) are a set of voluntary, climate-related financial disclosures for use by companies to provide information to their stakeholders. This Report contains our TCFD-relevant disclosures on Governance, Strategy, Risk Management, and Metrics and Targets. For more information on how we report against the TCFD recommendations, see Note 3 Taskforce on Climate-related Financial Disclosures (TCFD) of the Sustainability statements.

Other reporting frameworks

We align with the recommendations of the International Integrated Reporting Council <IR> Framework where possible. The intention of the <IR> Framework is to provide additional guiding principles and content elements for an integrated report. We use this framework to present an integrated view of how the company creates value for stakeholders in People, Planet and Profit, as well as the interconnection between these three dimensions.

We map our disclosures to other standards and frameworks to support our stakeholders who are using these. You can find how our disclosures map to the Sustainability Accounting Standards Board framework and the WEF IBC metrics and disclosures in Note 4 SASB and WEF IBC mapping of the Sustainability statements.

Selection of topics

The topics covered in this Report were selected on the basis of our materiality analysis, which assessed the relevance and impact of selected topics for our company and various stakeholders. On the basis of the principle of materiality (using the GRI Standards), we distinguish between topics whose importance warrants publication in this Report (relevant to both DSM and stakeholders), and topics whose importance warrants publication on the company website only (topics important to either DSM or stakeholders). The sustainability data in the Integrated Annual Report is qualitative as well as quantitative – the qualitative information can also contain quantitative elements. The Materiality matrix and the process by which it is created is reported on in Stakeholders, with the management approach in Note 1 Management approach for material topics of the Sustainability statements. We report on External recognition in Stakeholders.

Scope

The **People** and **Brighter Living Solutions** data in this Report cover all entities that belong to the scope of the Consolidated financial statements. **Planet** reporting covers manufacturing units where commercial production by DSM occurs.

Acquisitions and divestments

The **People** data for newly acquired companies are reported from the first full month after the acquisition date. The **Safety, Health (People), Environment (Planet)** and **Brighter Living Solutions** data for companies acquired in the:

- first half of a given year *('year x')* are included in the reporting scope of the year after acquisition *('year x+1')*.
- second half of a given year (*'year y'*) are included in the reporting scope of the year following the first full year after acquisition (*'year y + 2'*).

Divested companies

Planet and Brighter Living Solutions (BLS) data are reported until the moment control of the company is transferred, and Safety, Health and People data until the end of the month in which control of the company is transferred. The date in which control of the company is transferred generally coincides with the date a divestment is closed, and control of the shares is transferred to the new owner.

People methodology

People data are collected per Business Group and consolidated at corporate level.

Metrics on workforce and workforce composition, and inflow and outflow are reported based on the year-end figures. Employee engagement and the Inclusion index are measured on an annual basis.

Safety and health metrics are reported on a 12-month rolling average. Divestments are included in the rolling average for the months prior to transfer of control of the company. Occupational health cases and training hours are reported in the year-end figures.

Planet methodology

Our progress on the key environmental performance indicators is collected and evaluated twice a year for all DSM sites. The data are based on these sites' own measurements and calculations, which in turn are founded on definitions, methods and procedures established at corporate level. The site managers of reporting units are responsible for the quality of the data. Data are collected using measurements and calculations in the production processes, information from external parties (e.g., on waste and external energy) and estimates based on expert knowledge.

Reporting units have direct insight into their performance compared to previous years and are required to provide justifications for any deviations above the threshold. For most parameters, the threshold is set at 10%. The year-on-year comparability of the data can be affected by changes in our portfolio as well as by improvements to measurement and recording systems at the various sites. Whenever impact is relevant, this is stated in the Report. Details for the regions, as well as the methodology and calculations, are published on the company website, together with an explanation of the definitions used.

Brighter Living Solutions

Brighter Living Solutions (BLS) is DSM's program for the development of sustainable, innovative solutions with environmental and/or social benefits, creating shared value for our stakeholders. Brighter Living Solutions are products, services and technologies that, considered over their life cycle, offer a superior environmental impact (ECO+) and/or a superior social impact (People+) when compared to the mainstream alternative for the same application. The impact of Brighter Living Solutions can be realized at any stage of the product life cycle, from raw materials through the manufacturing process to potential re-use and end-of-life disposal. We report twice a year the percentage of Brighter Living Solutions within the business portfolio.

The Mainstream Reference Solution (MRS) is the product or service with which the DSM solution is compared. The MRS is determined based on the marketing strategy. It is the competing dominant solution in the same application. It can be either a similar solution from another supplier or a solution using an alternative technology to fulfil the same function, or, if the solution and its application are new to the market, or the marketing strategy is focused on market growth, the solution should be compared with the benchmark situation without using the solution.

Within the BLS program, we conduct an annual 'Product Category Sustainability Review' for all product categories. This review identifies environmental and social impact differentiators and risks for each of our product categories and confirms the mainstream reference solution. To substantiate the identified differentiators comparative Life Cycle Assessments (LCAs) and/or expert opinions to determine whether a product has a superior performance and can be identified as a Brighter Living Solution. The Sustainability Assessments to support the qualification for Brighter Living Solutions are required to be made by internal Life Cycle Assessment (LCA) experts and reviewed using the four-eyes principle with at least one internal, independent senior LCA consultant. The financial data are validated with the Corporate Sustainability department and consolidated as DSM Brighter Living Solutions KPI performance and reviewed by Group Control & Accounting.

Corporate governance and risk management

Corporate governance

Koninklijke DSM N.V. (Royal DSM) is a company limited by shares listed on Euronext Amsterdam. It is managed by a Managing Board together with an Executive Committee and an independent Supervisory Board. Members of the Managing Board and the Supervisory Board are appointed (and, if necessary, dismissed) by the General Meeting of Shareholders.

The company is governed by Dutch law and by its Articles of Association, which can be consulted on the company website. The General Meeting of Shareholders decides on any amendment to the Articles of Association by an absolute majority of the votes cast. A decision to amend the Articles of Association may only be taken at the proposal of the Managing Board, subject to the approval of the Supervisory Board.

At DSM, we fully inform our stakeholders about our corporate objectives, the way our company is managed, and our company's performance. In doing so, we aim to pursue an open dialogue with our shareholders and other stakeholders.

Our company has an organizational structure built around Business Groups that are empowered to perform all short- and long-term business functions. In this, they are assisted by support and corporate functions, as well as by regional organizations.

Managing Board and Executive Committee

The Executive Committee was installed to enable faster strategic alignment and operational execution by increasing our focus on the development of our business, innovation and people.

The Executive Committee comprises the Managing Board members as well as four senior executives with responsibility respectively for DSM Food Specialties and Corporate Mergers & Acquisitions (Philip Eykerman), the DSM Materials cluster (Helen Mets), the DSM Innovation Center (Patricia Malarkey), and People & Organization (Cristina Monteiro). Due to a temporary leave of absence on the part of Cristina Monteiro as of 15 October 2021, Geraldine Matchett took over responsibility for People & Organization on an ad interim basis. Upon the retirement of Chris Goppelsroeder as President DSM Nutritional Products, Dimitri de Vreeze stepped into this role in his capacity as Chief Operating Officer as of 1 April 2021. The senior executives serving on the Executive Committee are appointed by the Co-CEOs after consultation with the Supervisory Board. The Executive Committee focuses on topics such as our company's overall strategy and direction, review of business results, functional and regional strategies, budget-setting, and people and organization. The statutory responsibilities of the Managing Board remain unchanged.

The Managing Board is ultimately responsible for our company's strategy, portfolio management, the deployment of human capital and financial capital resources, the risk management system, financial performance, and performance in the area of sustainability. The Managing Board is thus also accountable to the Supervisory Board for our strategy and management. Notwithstanding that accountability, the full Executive Committee attends the Supervisory Board meetings.

The Managing Board consists of two or more members, to be determined by the Supervisory Board. The Managing Board currently consists of Co-CEOs Geraldine Matchett and Dimitri de Vreeze; more details can be found in Supervisory Board and Managing Board Royal DSM. Since the introduction of the Dutch Corporate Governance Code in 2004, members of the Managing Board have been appointed for a period of four years.

The members of the Managing Board are collectively responsible for the management of DSM. In addition to this collective responsibility, Managing Board members have individual responsibility for certain tasks, businesses, functional areas and regions. The distribution of these tasks is published on the company website.

The remuneration of Managing Board members is determined by the Supervisory Board based on the remuneration policy approved by the General Meeting of Shareholders. The remuneration policy for the Managing Board can be found on the company website.

The functioning of and decision-making within the Managing Board and the Executive Committee are governed by the Regulations of the Managing Board, which are in accordance with the Dutch Corporate Governance Code and can be found on the company website.

In 2021, the Managing Board and Executive Committee held 36 formal meetings. Due to the COVID-19 restrictions most of these were held virtually. No Managing Board member had to be excused from meetings during the year. One Executive Committee member was excused once for personal reasons. Another Executive Committee member was excused twice for personal reasons and once on account of another commitment. A third Executive Committee member was also excused once due to another commitment. In all cases the Executive Committee members gave advance input in writing or via other members. The Executive Committee and Managing Board take the time for an evaluation at the end of every meeting. This evaluation can be about topics that have been discussed during that meeting, but may also reflect on meeting dynamics and individual or collective performance. Where possible, the Executive Committee also takes the opportunity to organize informal moments such as a collective dinner at the end of a full-day meeting. Once a year, the Executive Committee and Managing Board take the time to get together and discuss their performance as a team.

Supervisory Board

The Supervisory Board comprises at least five members. Its current composition can be found in Supervisory Board and Managing Board Royal DSM. Supervisory Board members are appointed for a period of four years, after which they may be reappointed for a further four years. A Supervisory Board member may subsequently be reappointed for a period of two years, and this appointment may be extended by at most two years. For reappointments after an eight-year period, reasons must be provided in the report by the Supervisory Board.

All current members of the Supervisory Board are independent in accordance with the Dutch Corporate Governance Code. The remuneration of Supervisory Board members is determined by the General Meeting of Shareholders. The functioning of and decision-making within the Supervisory Board are governed by the Regulations of the Supervisory Board, which are in accordance with the Dutch Corporate Governance Code and can be found on the company website.

The Supervisory Board supervises the policy pursued by the Managing Board, the Managing Board's performance of its managerial duties, and the company's general course of affairs, taking the interests of all the company's stakeholders into account. When the Executive Committee was established, the Supervisory Board also took on responsibility for ensuring that the checks and balances that are part of the two-tier system are still given due consideration, paying specific attention to the dynamics between Managing Board and Executive Committee. The Supervisory Board is enabled to do so through the information provided by the Managing Board.

The annual financial statements are approved by the Supervisory Board and then submitted to the Annual General Meeting of Shareholders (AGM) for adoption, accompanied by an explanation from the Supervisory Board as to how it carried out its supervisory duties during the year under review.

In line with the Dutch Corporate Governance Code, the Supervisory Board sit variously on an Audit Committee, a Nomination Committee, a Remuneration Committee, and a Sustainability Committee.

The task of these committees is to prepare the decision-making of the Supervisory Board. These committees are governed by charters drawn up in line with the Dutch Corporate Governance Code. They can be found on the company website.

Diversity

At DSM, we strongly value diversity, and we endeavor to reflect this in our Board memberships. The Supervisory Board has formulated diversity policies for the Supervisory Board, the Managing Board and the Executive Committee. These policies seek a balanced composition of the respective body, taking into account gender, age, knowledge, experience, and nationality / cultural background. In addition, for the composition of the Supervisory Board, the tenure structure is taken into consideration.

In terms of gender diversity, we aim for at least 30% of the positions in our Supervisory Board, Managing Board and Executive Committee to be held by women and at least 30% by men — percentages which reflect Dutch legislation. To ensure a balanced composition in terms of nationality / cultural background, our aim is not to have more than 50% of the members of our Supervisory Board or Executive Committee drawn from a single nationality. While a diverse composition in terms of nationality / cultural background is also taken into account in the composition of the Managing Board, no quantitative target is set here, given the relatively small number of Managing Board members.

Our diversity policies are implemented by applying them to nominations for (re)appointments of Supervisory Board and Managing Board members as well as to appointments of Executive Committee members.

At the 2021 Annual General Meeting Frits van Paasschen, a Dutch-American national, was reappointed as member of the Supervisory Board. This was on the basis of his broad experience as a global business leader in both consumer markets and the service industry in various parts of the world, his deep understanding of the current trends that are impacting business around the world, his insights into how digital technology is changing the global economy and disrupting traditional business models, and his qualities as Supervisory Board member as demonstrated during his first term as member of DSM’s Supervisory Board. With the reappointment of Frits van Paasschen, the Supervisory Board maintains a strong profile in the areas of marketing and sales, emerging economies and digital.

John Ramsay, a British national, was reappointed as member of the Supervisory Board. This was on the basis of his extensive knowledge and experience in the field of finance and accounting, built up in various parts of the world, his extensive experience with managing global finance organizations, with external stakeholders and with mergers, acquisitions and divestments, and his qualities as Supervisory Board member as demonstrated during his first term as member of DSM’s Supervisory Board. With the reappointment of John Ramsay, the Supervisory Board maintains a strong profile in the areas of finance, accounting, auditing, risk and compliance, as well as in the area of emerging economies.

Carla Mahieu, a Dutch national, was appointed as member of the Supervisory Board on the basis of her in depth knowledge of and experience with people and organization management in an international business environment and in the context of the strategy of the business at hand. With the appointment of Carla Mahieu, the Supervisory Board aims to maintain its strong profile in the areas of people and organization.

Corien Wortmann-Kool, a Dutch national, was appointed on the basis of her broad background in public administration, politics and business. She brings a wealth of experience with and knowledge of finance and economics at executive level, as well as of the national and international societal and political context that companies operate in. With her experience in the financial sector, Corien Wortmann-Kool will strengthen the Supervisory Board’s profile in the areas of finance, accounting, audit and risk management. She will help maintain the Supervisory Board’s strong profile in the areas of sustainability, governance, compliance and public affairs.

Also, at the 2021 Annual General Meeting Dimitri de Vreeze, a Dutch national, was reappointed as member of the Managing Board on the basis of his managerial and leadership qualities as well as from his contribution to the Managing Board and Executive Committee during his second tenure as a member of the Managing Board.

Both our Supervisory Board and our Managing Board were well balanced in 2021 in terms of gender in the period until the 2021 Annual General Meeting (AGM), comprising 37% and 50% women respectively, and after the AGM comprising 50% and 50% respectively, which is in line with Dutch legislation and with the company’s own diversity policy. The gender diversity levels within our Supervisory Board and our Executive Committee exceed our target for at least 30% of these positions to be held by women and at least 30% by men. The percentage of women in DSM’s Executive Committee is 66%. Furthermore, the composition of both our Supervisory Board and our Executive Committee is in line with our target of not having more than 50% of the members drawn from a single nationality.

General Meeting of Shareholders

The **main powers** of the General Meeting of Shareholders relate to:

- The appointment, suspension and dismissal of members of the Managing Board and the Supervisory Board
- Approval of the remuneration policy of the Managing Board
- Approval of the remuneration of the Supervisory Board
- The adoption of the annual financial statements and declaration of dividends on ordinary shares
- Release from liability of the members of the Managing Board and the Supervisory Board
- Issuance of shares or rights to shares, restriction or exclusion of pre-emptive rights of shareholders and repurchase or cancellation of shares
- Amendments to the Articles of Association
- Decisions of the Managing Board that would entail a significant change to the identity or character of DSM or its business

The **Annual General Meeting (AGM)** is held within six months of the end of the financial year in order to discuss and, if applicable, adopt the Integrated Annual Report, the annual accounts, any appointments of members of the Managing Board and the Supervisory Board, and any of the other topics mentioned above.

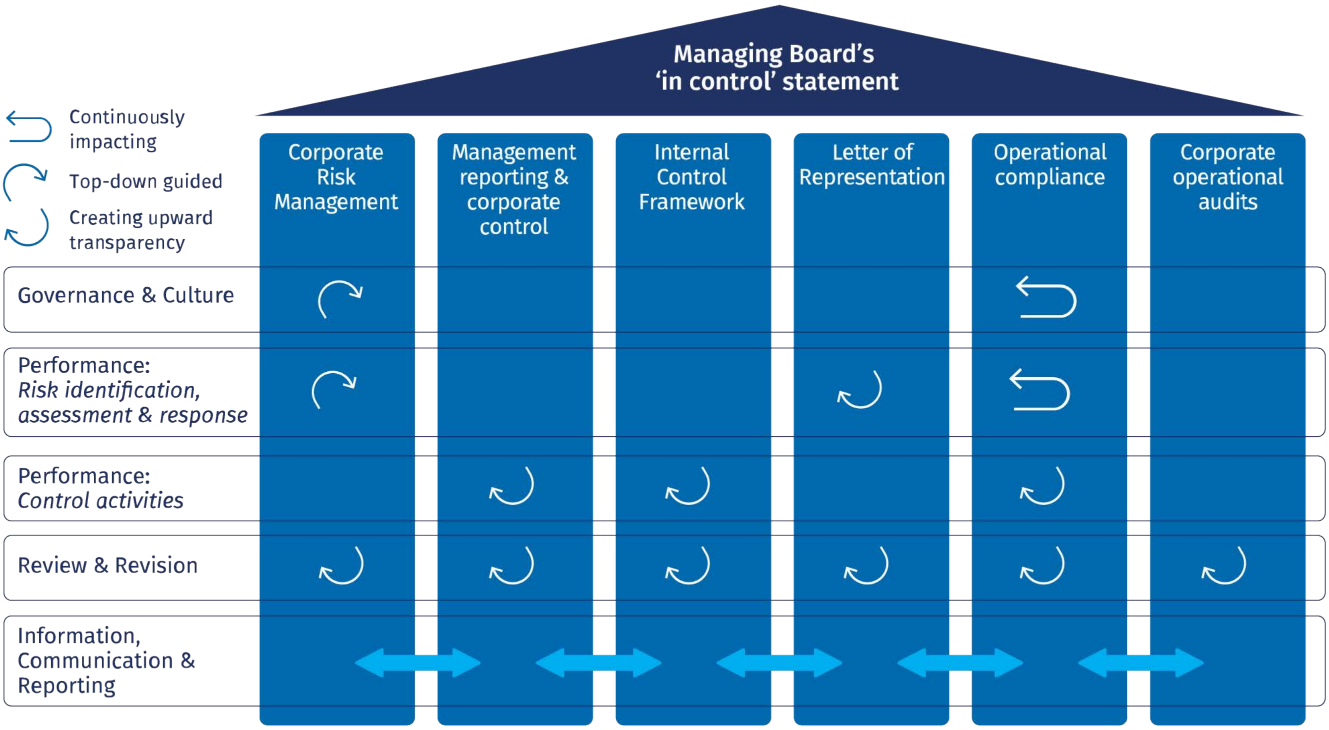
The AGM and, if necessary, other General Meetings of Shareholders are called by the Managing Board or the Supervisory Board. The **agenda and explanatory notes** are published on the company website.

According to the **Articles of Association**, shareholders who, individually or jointly, represent at least 1% of the issued capital have the right to request the Managing Board or the Supervisory Board to put items on the agenda. Such requests need to be received in writing by the Chair of the Managing Board or the Chair of the Supervisory Board at least 60 days before the date of the General Meeting of Shareholders.

The AGM was held on 6 May 2021. In view of the COVID-19 measures, the AGM was held virtually in compliance with the Dutch **Temporary Act COVID-19**. Shareholders were given the opportunity to ask questions upfront and follow-on questions during the meeting. All questions were addressed during the AGM and posted as Q&As on the company website. The agenda was essentially similar to that of previous years. Additional topics were the remuneration report 2020 for an advisory vote, the reappointment to the Managing Board of Dimitri de Vreeze, the reappointments to the Supervisory Board of Frits van Paasschen and John Ramsay, as well as the appointments of Carla Mahieu and Corien Wortmann-Kool. One agenda item relating to an amendment of the Articles of Association was amended prior to the meeting. All topics were adopted by the General Meeting of Shareholders.

Control effectiveness and continuity assumption

The Statements of the Managing Board conform with the Dutch Corporate Governance Code best practice 1.4.3 on 'Board Statements'.



Control effectiveness and continuity assumption

At DSM, we visualize our **control environment** as a 'house' that includes the internal control process areas with control measures related to strategic, operational, compliance and reporting risks. The elements of COSO (the Committee of Sponsoring Organizations of the Treadway Commission) provide a framework for identifying company activities that are carried out to ensure that the control environment is adequately structured. Finally, to make sure that full use is made of learning opportunities, monitoring activities include the sharing of findings and experiences as well as the application of control measures across the supporting pillars.

Our structure for **managing risks** is based on a three-lines model (see also Risk management). Line management within the units acts as the first line. Group Risk Management acts as the second line together with other departments such as DSM Operations & Responsible Care, assessing the effectiveness of risk management and internal control at both unit and corporate level. Corporate Operational Audit (COA) acts as the third line. The scope and frequency of COA audits is determined by ranking the auditable units according to the scale of their risk exposure, using a set of defined characteristics.

COA assesses the operation of **risk management framework** of the units by performing risk-based audits. These audits review the key processes and activities for the specific units. By means of these audits, COA closes the risk management cycle and provides additional assurance to the Managing Board as to the effectiveness of the design and operation of the risk management and internal control systems.

COA reports its **audit results** to the Managing Board and Executive Committee twice a year. COA also shares an overview with the Audit Committee of the Supervisory Board and communicates the executive summary of each audit report to Geraldine Matchett in her capacity as CFO and Co-CEO and to Dimitri de Vreeze in his capacity as Co-CEO.

In 2021, COA carried out **59 audits**. Due to COVID-19 restrictions, most of the 2021 audits were executed remotely via video calls using Microsoft Teams. We continued in 2021 with the use of smart glasses to be able to observe local situations in plants, labs and offices. In general, audit findings are considered opportunities for improvement as part of a healthy learning culture. In virtually all of the audited areas (e.g., Operations, IT, Finance, Cybersecurity, Safety, Health & Environment (SHE), Quality, Commercial) the expected DSM standard was achieved. In the rare event of insufficient follow-up on a finding, the Director of COA escalated that finding to the Co-CEOs.

Dutch Corporate Governance Code

DSM supports the Dutch Corporate Governance Code, which was most recently amended in 2016 and adopted by the company with effect from the financial year 2017. We ensure our continued compliance with the Dutch Corporate Governance Code. The Dutch Corporate Governance Code can be found on www.mccg.nl.

In line with the notion underlying the Dutch Corporate Governance Code we follow a multi-stakeholder approach. Our stakeholders are those groups and individuals who, directly or indirectly, influence — or are influenced by — the attainment of the company's objectives. The Managing Board and Supervisory Board have the responsibility for weighing up the interests of all stakeholders.

Long-term value creation is embedded in both our company's purpose-led, performance-driven strategy and our company culture: Our purpose is to create brighter lives for all. Sustainability is central to how we fulfill that mission, and to achieve this, we consider People, Planet and Profit in all we do. We apply our company strategy to focus our resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. More information on how long-term value creation is fundamental to our strategy and culture can be found in Strategy and People, as well as in How we create value for our stakeholders and in Our approach to the Sustainable Development Goals.

Any proposed substantial change to our corporate governance structure and compliance with the Dutch Corporate Governance Code should be submitted to the General Meeting of Shareholders for discussion under a separate agenda item.

All documents related to the implementation of the Dutch Corporate Governance Code at DSM can be found in the Corporate Governance section of the company website.

Governance framework

Organizational & operating model

Our Business Groups are the main building-blocks of the company's organization. They have integral long-term and short-term responsibility for business and have at their disposal all functions that are crucial to their business success. As the company's primary organizational and entrepreneurial building-blocks, our Business Groups focus on four primary business functions: Innovation and R&D, Direct Sourcing, Manufacturing & Operations, and Marketing & Sales. Intra-company product supplies are contracted by the Business Groups on an arm's-length basis.

In 2021, similar to previous years, the Business Groups were organized into clusters, thus ensuring coherence of operations and the leveraging of resources within each cluster. The clusters were the main organizational entities for external strategic and financial reporting. This structure ensured flexibility, efficiency and speed of response to market changes. In order to ensure sufficient independence regarding financial management, the CFO had, and still has, no Business Groups reporting to her.

Our Business Groups received services from global support functions and functional excellence departments and were supported by the regional organizations. This set-up enabled us to create a global, high-performing organization focused on meeting its targets and achieving its ambitions. The support functions and functional excellence departments were paid for their services by the users — the Business Groups and, to a lesser extent, other DSM units. Corporate departments were paid from a corporate budget.

Support functions provided those services that can be delivered more efficiently (in terms of total cost of ownership) by leveraging them across the company, thus capturing benefits of scale and delivering higher quality at lower cost, rather than having them arranged in each Business Group separately. There are support functions in the areas of Finance, People & Organization, Legal, Indirect Sourcing, Communications and ICT. Each support function reported to a Managing Board member or a member of the Executive Committee.

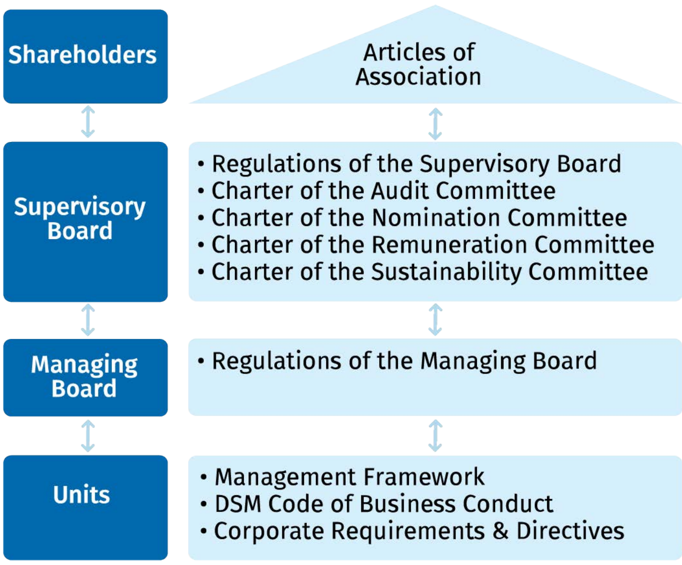
Within support functions, **centers of expertise** provided specialist support, while shared service centers provided standard transactional support. Business partnering is the concept that acts as the interface between the Business Groups and the support functions. Business partners consequently have a second reporting line in the business. In order to ensure that the functional policies sufficiently reflect regional requirements, the support functions work closely with the regional organizations and integrate their advice.

Corporate functions (small, high-level groups) supporting the Managing Board and Executive Committee are also seen as support functions. The corporate departments are: Corporate Strategy & Acquisitions, Corporate Operational Audit, Corporate Risk Office, Corporate Sustainability, Corporate Investor Relations and Corporate Affairs.

Functional excellence departments are mandated by the Managing Board to help the businesses achieve excellence in their respective fields. They cover the areas of Operations & Responsible Care, Marketing & Sales and Science & Technology. Functional excellence departments support our businesses in improving their performance. They also provide guidance in setting aspiration levels and targets.

Governance framework

The following figure depicts our company's **overall governance framework** and the most important governance elements and regulations at each level.



The Managing Board and Executive Committee adhere to the **Regulations** of the Managing Board. In addition, DSM has a **Management Framework** in place which implies, among other things, that the units adhere to the DSM Code of Business Conduct and applicable corporate policies and requirements.

The company's strategic direction and objectives are set by the Managing Board. In September 2021 DSM presented the acceleration of its strategic journey, including the announcement of its new Food System Commitments, for more detail, see Strategy.

The **units** conduct their business within the boundaries of the Management Framework. This implies, among other things, that they:

- Comply with the DSM Code of Business Conduct, Corporate Requirements and Directives
- Establish the strategy, objectives and operational targets of their business in line with the corporate strategy, investigate various scenarios and related risk profiles, and report on the achievement of these objectives and targets
- Implement a risk management framework, which includes taking accountability for the identified risks and related mitigation through annually signing the Letter of Representation
- Implement company-wide standards for support functions (systems, processes, vendors, etc.)
- Implement annual functional improvement plans

Independent audits for all operational units are conducted by the **Corporate Operational Audit (COA)** department. The Director of COA reports to the CFO and has access to the Managing Board, the external auditor and the Audit Committee of the Supervisory Board. Furthermore, the Director of COA acts as the compliance officer regarding inside information and is also the secretary of the Disclosure Committee. The Director of COA additionally chairs the DSM Alert Committee, which is responsible for our whistleblower policy, systems and processes.

Chaired by the CFO, the **Disclosure Committee** ensures the timely and accurate disclosure of share-price-sensitive information related to the company and is responsible for the implementation of company rules on the holding and execution of transactions in the company's financial instruments, among other things.

A third committee at corporate level is the **Fraud Committee**, which was installed to ensure structural follow-up of fraud cases with the aim of reducing fraud exposure. Relevant corporate functions participate in the Fraud Committee, which is chaired by the Group Controller.

Sustainability Governance Framework

Managing Board

Sustainability falls under the responsibility of the Managing Board. Specific actions in our **climate action agenda** are owned by members of the Managing Board and Executive Committee. In 2021, our Co-CEOs oversaw Sustainability as a key **responsibility and company value** as well as a driver of business growth. They Co-Chair our Inclusion & Diversity Council, and jointly oversaw our strategic partnership with the World Economic Forum.

In 2021, our Co-CEO Dimitri de Vreeze was responsible for **Safety, Health and Environment** (SHE) and supervised our **Sustainable Procurement Program** and the sourcing of electricity from renewable sources in his responsibility for the Sourcing function. He managed our engagement with organizations with a primary focus relating to **climate**. Within the climate action agenda, he was responsible for the upgrading of our methodology for measuring the impact of our product portfolio, for our climate advocacy efforts, and for reviewing our **emissions reduction targets**. He was also responsible for overall supervision of the full climate action agenda.

Our Co-CEO Geraldine Matchett oversaw our engagement with organizations with a primary focus relating to **nutrition and malnutrition**. She was responsible for integrating Sustainability into **financial decision-making**. She also oversaw our efforts and commitment toward the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations. Within the climate action agenda, she was responsible for integrating climate risks into our **risk management process**, TCFD, **carbon pricing** and developing our engagement with **climate-focused investors**.

Supervisory Board

Our Supervisory Board has its own **Sustainability Committee** to oversee progress against targets and to report on the embedding of sustainability across the organization. For more details, see Supervisory Board Report.

External Sustainability Advisory Board

Comprising a diverse international group of thought leaders, DSM's Sustainability Advisory Board acts as a sparring partner for the Managing Board and senior executives, to help sharpen their focus on strategic issues, deepen their understanding of external stakeholder needs, conduct advocacy and tackle specific issues as they arise.

The Sustainability Advisory Board met twice in 2021 together with the Managing Board and a number of senior executives. Subjects addressed included business updates, with a focus on Africa, carbon offsetting, on-farm emissions reductions and Sustell™, the food systems transformations and our proteins innovation pipeline. Due to the virtual nature of these meetings, this board was unable to include a site visit as part of the meeting. This board maintains a good balance of knowledge and a diverse composition in terms of gender and nationality.

Sustainability Advisory Board

Member	Background
Robin Chase (f)	Co-founder and former CEO of Zipcar, co-founder of Veniam and the New Urban Mobility Alliance, Board member of the World Resources Institute and Chair of Tucows. Serves as an informal advisor to many cities, national governments, and transport agencies on urban transportation planning and innovation. Nationality: American.
Ertharin Cousin (f)	CEO and Founder, Food Systems for the Future, Distinguished Fellow with The Chicago Council on Global Affairs, Visiting Scholar at Stanford University, Robert von Weizsäcker Fellow at the Bosch Academy, Senior Advisor ClimateWorks and a Board Member of Bayer S.A., Mondelez International Corporation, and Camelot North America as well as a Trustee on the Rwanda- based AKADEMIYA2063 Board of Directors. She served as the twelfth Executive Director of the United Nations World Food Programme from 2012 to 2017 and as the US Ambassador for Food and Agriculture. Nationality: American.
Paul Gilding (m)	Social entrepreneur, author and corporate strategy advisor. Fellow at the University of Cambridge Institute for Sustainability Leadership (UK). Author of *The Great Disruption* (Bloomsbury, London, 2011). Executive director of Greenpeace International during the 1990s. Nationality: Australian.
David King (m)	Emeritus Professor of Chemistry, University of Cambridge; Founder and Chair of the Centre for Climate Repair in the University; Chair of the Climate Crisis Advisory Group, an Affiliate Partner of SYSTEMIQ Limited; Senior Strategy Advisor to the President of Rwanda; and founder member of the Clean Growth Leadership Network; The British Foreign Secretary's Special Representative on Climate Change 2013–2017. Nationality: British.
Ndidi Nwuneli (f)	Social entrepreneur and Founder of LEAP Africa, Nourishing Africa and Changing Narratives Africa, and co-founder of AACE Food Processing & Distribution Ltd. (AACE Foods), an indigenous agro-processing company in Nigeria. She is also the managing partner of Sahel Consulting Agriculture & Nutrition, which works across Africa, transforming the nutrition and agriculture landscapes via innovative ecosystem solutions. She is the author of the book *Food Entrepreneurs in Africa: Scaling Resilient Agriculture Businesses* (Routledge, 2021). Nationality: Nigerian.
Ye Qi (m)	Director of the Institute for Public Policy at Hong Kong University of Science and Technology, and Cheung Kong Professor of Environmental Policy at Tsinghua University in Beijing (China). Before joining Tsinghua, he taught at Beijing Normal University, and the University of California at Berkeley (USA). Nationality: American.
Feike Sijbesma (m)	Honorary Chairman of Royal DSM since March 2020, and former CEO between 2007 and 2020. In 2020, he acted as the Special Corona Envoy for the Netherlands. He is Chairman of the Supervisory Board of Royal Philips, non-executive Board member of Unilever and member of the Supervisory Board of the Dutch Central Bank (DNB). He co-chairs the Global Centre for Adaptation together with Ban Ki Moon and acts as an advocate and leader for business tackling climate change. As co-chair of the WEF Climate Leaders and via his membership of the Board of Trustees of the WEF, he also contributes to the expansion of Africa Improved Foods. Nationality: Dutch.

Global network

Sustainability Leadership Team

At corporate level, sustainability is steered by our **Sustainability Leadership Team**, a group of senior executives representing the Business Groups and contributing corporate functions, which is chaired by the Vice President Sustainability. He leads the Corporate Sustainability department and reports directly to the Co-CEOs. The Corporate Sustainability staff functions as a business-oriented **center of excellence** and partner on sustainability, internally and externally.

The Sustainability Leadership Team meets quarterly to monitor the progress of sustainability across the company, with particular emphasis on steering our **business and innovation portfolio** in relation to key drivers. Regional operational **sustainability networks** are in place in China, India, Latin America and North America.

Operations & Responsible Care

DSM Operations & Responsible Care has responsibility for all corporate issues related to **Safety, Health and Environment** (SHE). This also includes **security**. The Senior Vice President DSM Operations & Responsible Care reports directly to the Managing Board. SHE managers provide support at Business Group level. Our SHE Council, which includes all Business Group SHE managers, is instrumental in sharing experiences and developing best practices and communications on SHE issues.

People and Organization

Our Inclusion & Diversity (I&D) Council steers the overall I&D strategy and drives activation of our I&D program. Co-chaired by the Co-CEOs, it comprises the regional presidents and Employee Resource Group leads. In addition, the five diversity pillars are sponsored by Executive Board members.

The day-to-day responsibility for Human Rights at DSM sits with our Executive Vice President People & Organization, who chairs our Human Rights Steering Committee. This committee is responsible for the strategy and framework for managing human rights issues and is comprised of senior leaders from People & Organization, Sustainability, Legal, Procurement and Operations. These departments are further represented in the human rights working group who are responsible for the day-to-day implementation of our respect for human rights.

Taskforce on Climate-related Financial Disclosures

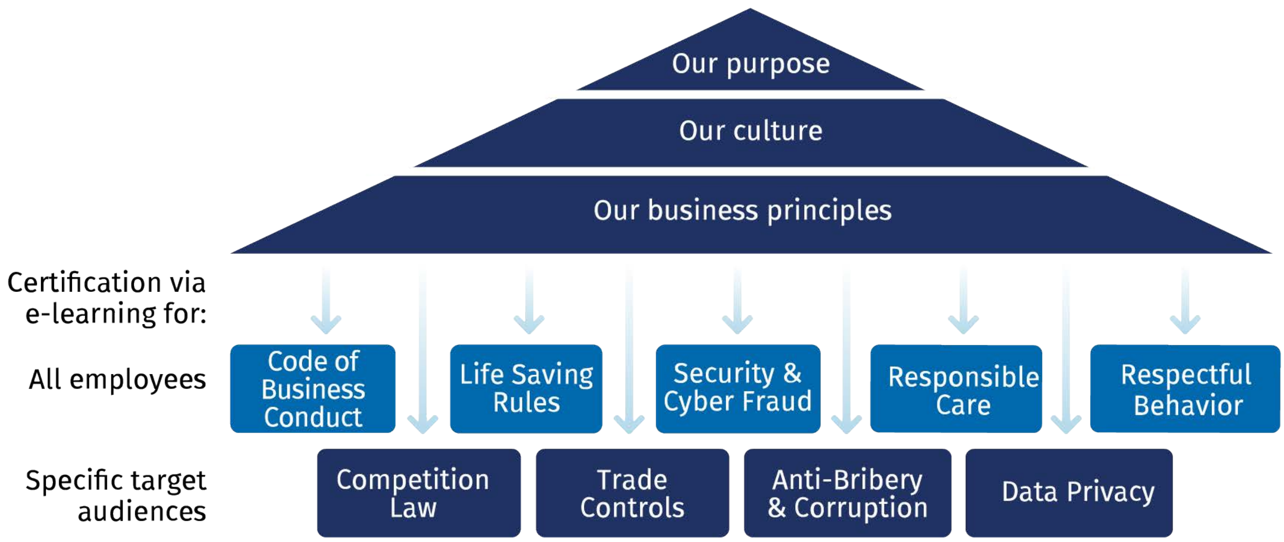
In her capacity as CFO, Ms. Matchett has appointed a finance executive to lead the efforts needed to address the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD). Senior leaders from various disciplines such as Finance, Risk Management, Sustainability, Insurances, Operations & Responsible Care and Sourcing worked on various initiatives in 2021 to expand **physical and transition risk assessments**, as well as continuing to embed **climate-related risks into the overall risk management processes**. For more information, see Note 3 Taskforce on Climate-related Financial Disclosures (TCFD) of the Sustainability statements.

DSM Code of Business Conduct

Introduction

The DSM Code of Business Conduct ('the Code') serves as an umbrella for several other DSM regulations and forms the basis for our company's **ethical business behavior**. Our purpose, our culture and our business principles are an integral part of the Code. The business principles translate our purpose into important do's and don'ts to guide our business operations and decisions in daily practice. In 2021, two new business principles were added to the Code. The business principle on social media guides DSM employees to act as DSM ambassadors when using social media in relation to the company. The business principle on quality is aimed at creating a positive customer experience by assuring quality of our operations and traceability in our supply chain. All DSM employees are expected to follow the Code, which is available in seven languages. The full text of the Code also appears on the company website. The Managing Board holds DSM's unit management accountable for compliance with the code.

DSM Code of Business Conduct and values training program



Training and awareness

The **DSM values training program** contains several e-learning courses to explain the Code and a number of its business principles in more detail. These courses are aimed at raising awareness of ethical business behavior and are assigned to all employees or, in the case of certain subjects, to specific target audiences. All courses are available in at least six languages, unless indicated otherwise. When we acquire a business, integration and compliance plans are rolled out to make sure new employees are trained accordingly.

A **review team**, chaired by the Vice President Risk Management & Internal Control, monitors the internal and external developments around corporate ethics to promote and safeguard the company's values and reputation. The review team also monitors implementation of the DSM values training program (see table Implementation of the DSM values). At year-end, most employees had completed or refreshed their training (excluding employees of some recently acquired businesses). Our learning management system also has an external portal to enable relevant contractors and other third parties to follow courses of the DSM values training program.

The DSM values training program covers the three dimensions of **People, Planet and Profit**. An overview of the courses and the changes in 2021 is listed below, as well as a number of important implementation measures.

People

The **Life Saving Rules** specify the 12 most important rules that must be followed by all our employees to prevent incidents.

The **Respectful Behavior** e-learning emphasizes the importance of inclusion and diversity, and promotes respectful behavior as well as active bystander behavior. It is meant to foster effective employee relations, communications, and non-discriminatory practices, and to prevent inappropriate behavior, including sexual harassment.

The DSM Binding Corporate Rules for Data Privacy prescribe mandatory **Data Privacy** training for employees who regularly work with personal data from employees and business partners. This is provided by the General Data Protection Regulation (GDPR) overview e-learning, which is rolled out to a large target audience including all employees working in the functions People & Organization, Marketing & Sales and Purchasing. In addition to this, concise e-learnings are in place to train all our employees on the consequences of the GDPR and the importance of prompt data breach notification.

Planet

The **Basic Course Responsible Care** addresses the elements of the Responsible Care Program: Safety, Health, and Environment; Product stewardship; Security; and Sustainability.

Profit

The e-learning course **Global Competition Law Principles and Practices** addresses the main principles of anti-trust legislation. Relevant employees annually confirm their compliance with the rules via a Competition Law Compliance Statement. In this statement, they confirm that they are not aware of any violation of competition laws by DSM. For a smaller group of employees, mandatory Competition Law classroom trainings on specific topics are organized. Alleged breaches, if any, are reported to, and discussed with, Group Legal Affairs. In 2021, no breaches were reported.

The course for **Global Trade Controls** (available in English) explains the most important aspects of international trade legislation. Compliance with trade controls is embedded in our systems and processes. Company master data is screened to check customers and suppliers against embargoes and lists of sanctioned parties.

The **Anti-Bribery & Corruption** (ABC) e-learning provides training on the most important features of bribery and corrupt behavior. In addition, the DSM ABC Policy and Compliance Manual (available in English and Chinese) is shared with selected employees in commercial and business roles, who must also follow ABC classroom training (integrated into the Competition Law classroom program).

The DSM **Security** e-learning covers our seven Key Security Behaviors. To complete this e-learning, employees are required to read and sign off on the DSM Code of Conduct for Information Security. The **Cyber Fraud Awareness** e-learning is an additional training to increase awareness among all employees regarding prevalent types of cybercrime. Furthermore, global as well as targeted phishing tests are regularly carried out to ensure that our people stay alert.

We also have rules to prevent misuse of **inside information** on the holding of or trading in DSM financial instruments, such as shares and other securities, and where applicable the holding of or trading in financial instruments of other companies. These rules apply to all relevant employees, including the Executive Committee, the Managing Board, and the Supervisory Board.

Value chain

The business principles most relevant to our supply chain are brought together in the **Supplier Code of Conduct** and are also structured along the three dimensions of People, Planet and Profit. The Supplier Code of Conduct, available on the company website, is signed off by suppliers in framework contracts, confirming their commitment to sustainability, among other things.

For our distributor and agent framework contracts, the **Anti-Bribery & Corruption Policy** is translated into terms and conditions to ensure ethical business conduct when these parties act on behalf of DSM or deal with DSM products further down the value chain.

Consequence management

We apply zero-tolerance consequence management to violations of the Code. Under our **whistleblower procedure** (DSM Alert), most (potential) violations are reported to and dealt with by local line management. Where this is not considered appropriate, complaints can directly be made to the **DSM Alert Officer**. In both cases, consequence management practices (such as official warning, temporary suspension, dismissal) are in place for substantiated violations to support compliance with the Code. The DSM Alert Officer reports to the Managing Board and also reports independently to the Audit Committee of the Supervisory Board twice a year. Any individual not employed by DSM who might wish to voice a concern regarding violations of the Code may also contact the DSM Alert Officer via the company website.

In 2021, **23 Alert cases** (reports of potential violations of the Code) were received by the DSM Alert Officer, three of which were reported by an external party. This is at a level comparable with previous years. Four of these were potential bribery and corruption cases. After investigation, one of these four Alert cases was substantiated and consequence management was applied.

The table below gives an overview of all reported substantiated **violations of the Code** (including Alert cases), with a breakdown by the People, Planet and Profit dimensions and region. Proven violations result in dismissal or other forms of consequence management. In line with this policy, 45 employees were dismissed in 2021 because of breaches of the Code, legal or local company regulations. In addition, 89 employees received another form of consequence management. Over the years, the number of violations has remained about the same. In 2021, a slight increase in the reporting of dismissal cases and a slight decrease in other kinds of consequence management cases was seen.

People

Most of the cases in the People dimension relate to violations of the Life Saving Rules. Inappropriate or disrespectful behavior that does not contribute to a psychologically safe and healthy working environment (discrimination, sexual and other kinds of harassment) is also reported in this dimension. Health and safety are priorities for the company and incident-reporting channels are well known.

Planet

There were 6 violations of the Code reported in the Planet dimension in 2021. All these cases concerned a failure to strictly observe our procedures.

Profit

Most of the cases in the Profit dimension relate to fraud and conflict of interest

Implementation of the DSM values training program

	2021	2020
% of targeted employees trained		
General		
Code of Business Conduct	97%	95%
People		
Life Saving Rules	99%	98%
Respectful Behavior	98%	96%
GDPR overview	99%	95%
Planet		
Basic Course Responsible Care	99%	97%
Profit		
Global Trade Controls	98%	95%
Anti-Bribery & Corruption	98%	94%
Security	96%	96%
Cyber Fraud Awareness	98%	98%
DSM Annual Competition Law Statement		
% of people having signed the statement	100%	100%

Violations of the Code

	2021	2020
Number of dismissals / other consequence management	45 / 91	37 / 121
Triple P breakdown		
People	30 / 73	29 / 102
Planet	0 / 6	0 / 5
Profit	15 / 12	8 / 14
Regional breakdown		
Europe & Africa	12 / 37	13 / 52
Americas	26 / 42	20 / 55
Asia–Pacific	7 / 12	4 / 14
TOTAL	136	158

Alert cases (whistleblower procedure)

	2021	2020
Number substantiated / not substantiated / under investigation	7 /15 / 1	9 / 9 /4[1]
Triple P breakdown		
People	6 / 11 / 1	7 / 7 / 2
Planet	0 / 0 / 0	1 / 0 / 0
Profit	1 / 4 / 0	1 / 2 / 2
Regional breakdown		
Europe & Africa	1 / 4 / 0	1 / 3 / 2
Americas	4 / 9 / 1	5 / 3 / 0
Asia–Pacific	2 / 2 / 0	3 / 3 / 2
TOTAL	23	22

1 The four Alert cases 'under investigation' in 2020 were resolved in 2021: two were substantiated, two were not substantiated.

Risk management

DSM risk management framework

A well-embedded risk management framework and accompanying organization are in place. The framework is based on COSO Enterprise Risk Management and this section is structured accordingly (see DSM Risk Management Cycle below). For each of the five COSO components (dark blue boxes) the implementation within DSM (light blue boxes) is explained, starting with Governance & Culture (in a clockwise direction).

Governance and culture

Risk management responsibilities

The Managing Board is accountable for the management of all risks associated with our company's strategy and business objectives. To this end an appropriate risk management system is in place.

It is the responsibility of the Business Groups, support functions, functional excellence departments and regions within DSM (the units) to set up, operate, maintain and monitor an appropriate risk management system within their area of responsibility.

We apply elements of the Three Lines Model to manage risks effectively.

First line: the responsibility for identifying, assessing and managing risks, including control execution, lies with the individual units.

Second line: Group Risk Management (GRM) designs, implements and maintains the overall risk management framework for the company. GRM also supports the first line in risk identification, assessment and management by designing and developing standards, systems and tools. Within GRM there is an independent department testing the effectiveness of the Internal Control Framework.

Besides GRM, there are also other departments acting as a second line, for instance, DSM Operations & Responsible Care covering Manufacturing, Supply Chain, SHE and Security.

Third line: Corporate Operational Audit (COA) conducts independent operational audits of all units on behalf of the Managing Board.

GRM and COA report directly to the CFO/Co-CEO, and COA has direct access to the COO/Co-CEO as well as to the Audit Committee of the Supervisory Board.

Code of Business Conduct

The Code of Business Conduct comprises our purpose, our culture, and our business principles, which form the **basis for risk management**. Our culture is directly related to our purpose of creating brighter lives for all. All our employees receive regular training on the Code of Business Conduct and on detailed aspects of relevant business principles.

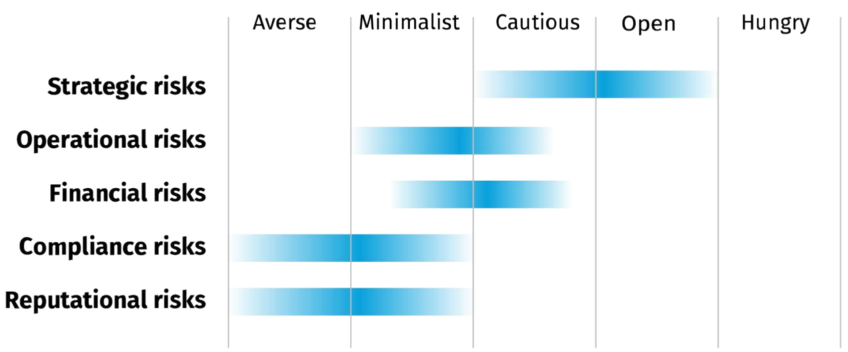
Strategy and objective-setting

The Managing Board supported by the Executive Committee establishes the company strategy and business objectives.

Risk appetite

The risk appetite defines the level of risk the company is prepared to take in the different risk categories, being strategic, operational, financial, compliance, and reputational risks. The risk appetite supports **priority-setting** in risk responses. The Executive Committee decides on the risk appetite, which is reviewed annually. In 2021, our risk appetite was updated. The category of reputational risks was added and the criteria to rate the risk appetite were changed in order to give better guidance to the units for decision making (see figure below).

DSM's risk appetite



Corporate Requirements

The Corporate Requirements are our internal rules and regulations, which are defined and maintained by the support functions and GRM. In line with the Code of Business Conduct and the risk appetite, the Corporate Requirements provide:

- **Risk-based guidance** for managing common business and process risks ('common controls for common risks')
- **Standards and practices** to increase the efficiency of our main business processes and functions

The Corporate Requirements are mandatory for all units, and management is responsible to implement these as and when applicable.

Performance

Risk management is designed to **create and preserve value**. Important elements are identifying, assessing and responding to risks that may impact the achievement of our company strategy and business objectives and the execution of control activities. This part of the risk management framework focuses on practices that support the organization in making decisions.

Risk identification, assessments and response

Risk assessments are performed at various levels in the organization. We take a standard but flexible approach to risk assessments:

- Risk assessment planning
- Preparation
- Risk identification and clustering
- Risk rating
- Evaluation and risk response

Both short-term risks (up to and including three years) and emerging risks (3–30 years) in the risk categories strategic, operational, financial, compliance, and reputational are the focus of our risk assessments. A Risk Assessment Manual and training is available to give guidance and continuously improve the effectiveness of our risk assessment process.

Corporate Risk Assessment

We periodically conduct a Corporate Risk Assessment (CRA), which is the responsibility of the Managing Board. As part of this assessment, the Executive Committee reviews and agrees on the short-term top risks as well as emerging risks. The Executive Committee also agrees on how to mitigate and monitor these.

Unit Risk Assessments

The DSM units conduct various types of risk assessments:

- **Business Risk Assessments** focus on risks that could jeopardize the attainment of our strategic goals and business objectives
- **Process Risk Assessments** are intended to make our processes more robust and fraud-proof
- **Project Risk Assessments** focus on specific projects and are updated throughout project execution to secure successful delivery of project objectives and value creation for the company

In addition to the above, **specific risk assessments** may be performed for areas such as Safety, Health, Environment, Climate and (Cyber)security.

Most risk assessments are carried out by cross-functional teams. These teams include experienced facilitators as well as experts, who can challenge assumptions in order to help improve the quality of these risk assessments.

Control activities

Control activities are integrated in our business processes, and are executed by the first line. They are preventive or detective and may encompass a range of manual and (semi-)automated controls such as policies, procedures, authorizations, verifications and business performance reviews. We apply a standard approach for **user access management**, including privileged users, as well as **Segregation of Duties** (SoD) management. These controls also help us to avoid fraud and reputational damage, and support the Statements of the Managing Board.

The **Internal Control Framework** (ICF) aims to ensure reliable financial reporting, mitigate fraud risks and safeguard our assets. It defines the standard set of **key controls** that must be performed by the first line. The internal control department within GRM owns the ICF.

Review and revision

Internal Control review

The **testing of the effectiveness** of the key controls as included in our Internal Control Framework (ICF) is performed by the Internal Control department within GRM. This is one of the pillars of our House of Control supporting the Statements of the Managing Board.

COA audits

COA, as the third line, conducts independent operational audits based on the mandatory guidance of 'The Institute of Internal Auditors' to **provide additional assurance** to the Managing Board that significant risks are being managed and controlled effectively, efficiently and sustainably. Some of these audits are unannounced. The scope and frequency of COA audits is set according to the ranking of the auditable units in terms of the magnitude of risk, based on a number of defined characteristics. This program is agreed by the Executive Committee and the Audit Committee of the Supervisory Board.

Enhancement of the risk management system

During 2021, the following **main improvements** were made to our risk management framework:

- Group Risk Management was extended with the expertise areas *Information Security Risk Management* and *Sustainability Risk Management*
- Our Code of Business Conduct was extended with the business principles *Quality* and *Social media*, and the corresponding training has been updated accordingly
- Our Corporate Requirements regarding privacy and personal data processing were updated
- The approach for determining the risk appetite was updated. The category of reputational risks was added and the criteria to rate the risk appetite have been changed in order to give better guidance to the units for decision making
- The risk assessment process was improved, addressing both internal and external risk factors in a more structured way
- The roles, responsibilities and processes to **manage Segregation of Duties (SoD) conflicts** were strengthened, supported by new tooling
- The automation level of internal controls was increased, improving the efficiency and effectiveness of control execution and testing

Information, communication and reporting

Communication channels

We strive for an **open communication culture** and have various **channels for communicating risk information** both internally and externally. These channels enable our organization to provide relevant information for decision-making.

Risk management is an intrinsic part of doing business, so normal business discussions regularly address this topic. In addition, to ensure that specific risks receive sufficient attention, we have installed the following consultation and communication structures:

- Global Fraud Committee
- Global Issue Committee
- Cybersecurity Governance Board
- Ethics Board for People Data
- Human Rights Steering Committee
- Privacy Council
- Alert Committee
- Disclosure Committee
- Values Training Review Team
- Value Assurance Reviews
- Risk Management Committees in the various units
- Dedicated discussions with the Executive Committee on the Corporate Risk Assessment and the outcome of the Letter of Representation process

Letter of Representation

The Letter of Representation (LoR) is a biannual process whereby DSM's units provide a comprehensive overview of incidents and risks to the Managing Board. The units report their identified **short-term and emerging risks** according to five categories: strategic, operational, financial, compliance, and reputational. The LoR also documents the mitigation actions defined in respect of these risks. A formal sign-off by each unit director is required. The output of the LoR process is discussed in the Executive Committee as well as the Audit Committee of the Supervisory Board. The **material incidents** are reported in the section What still went wrong in 2021.

Top and emerging risks

The output of the Corporate Risk Assessment process — being top risks and emerging risks — is discussed in the Audit Committee of the Supervisory Board and reported below.

Our risk profile

The risk management activities as performed by the first line as well as the reviews/audits conducted by the second and third line in 2021 did not indicate any material failings in the design and effectiveness of our risk management and internal control system. This is the basis for the Statements of the Managing Board and for the risk disclosures below.

Top risks and related mitigating actions

Below, the five **most important risks** are listed that might prevent us from achieving the targets defined in our strategy, along with the mitigating actions we are taking to further reduce our exposure. These risks are labeled as top risks as the exposure on DSM's EBITDA is an indicative €30 million or more, or because they have a major non-financial impact such as on reputation.

Market environment

There is a risk that we may not meet our strategic targets in the event of not being able to respond fast enough to the volatile economic environment or to increasing competition, especially from low-cost/margin players.

To address this risk, several improvement projects were implemented in 2020 to create a more agile organization. In 2021, macro-economic conditions continued to be challenging, with high logistic costs, as well as increasing energy prices in Europe. Despite these headwinds, we continued to show resilience, serving our customers and delivering solid financial results.

Nevertheless, with increasing inflation and uncertain market developments there is a risk that sales volumes and margins could be negatively impacted.

Further mitigations: To distinguish ourselves from our competitors, we continue to create value for our customers through innovative products and services. In addition, in 2021 we revised the organizational structure of DSM, creating three Business Groups more closely aligned with the end markets we serve. We also adjusted the operating model for science and innovation to bring innovation closer to the Business Groups, and the set-up of all enabling functions has been revisited to better support business priorities.

Talents

There is a risk that we might not be able to attract, retain and develop the talents required to transform our company and deliver on our strategy. To enable continued strong performance, our P&O strategy has been fully aligned with our business priorities, and it is centered around our Culture Compass. It has four focus areas, addressing organization, people, workplace, and leadership and it is supported by modern, flexible rewards.

We want to provide an environment where everyone can feel safe, valued and included and where everyone can contribute. Our Inclusion & Diversity strategy therefore consists of initiatives to diversify our current and future talent pools. And, as an engaged workforce is essential, we increased our efforts to connect with our employees in different ways throughout the pandemic. We monitor employee engagement and well-being through different surveys.

Further mitigations: A new data platform will provide new people and organization insights that will serve as a base for future decision-making.

Purpose-driven growth

As we move further into new business areas – such as gut health, precision & personalization - there is increased uncertainty around time-to-market and peak sales of our innovation projects, impacting our organic growth.

Several strategic projects progressed well in 2021, such as the launch of the decision-making tools Verax™ and Sustell™, the regulatory approval for Bovaer®, our methane inhibitor solution, the launch of Hologram Sciences Inc., the introduction of a fast-acting vitamin D form ampli-D®, the expansion of the portfolio of Market-Ready Solutions, the capacity expansion and growing market reach for Veramaris®, our algal-based omega-3, the construction of a production facility for CanolaPRO®, a rapeseed protein isolate, and the development of the market for EVERSWEET™, our fermentative Stevia sweetener. Despite the progress that has been made so far and having processes in place to manage and monitor further progress of innovation projects, the contribution to organic sales growth remains a risk.

Further mitigations: We are aligning our science and innovation organization with our new end-market organization. We will also continue to increase our investments in the digital transformation of our science and innovation capabilities such as artificial intelligence (AI), big data, deep learning and modelling as well as extending lab automation.

Cyber threats

In an increasingly digital world, DSM is subject to cybersecurity attacks which, if successful, could lead to a loss of intellectual property, discontinuity of operations, or otherwise have a negative impact on the company.

To address this risk, we continued throughout 2021 to implement our multi-year cybersecurity programs that cover the domains of information technology, operations technology, and R&D laboratory systems. We have updated our maturity assessment to provide us with insights for further improvements.

Since the 'human firewall' remains critically important, we continued to raise employee awareness via e-learnings, awareness campaigns and regular phishing tests, either on a global scale or for specific target groups.

Despite our progress in this area, the risk remains due to a growing number of digital initiatives driven by our strategy, and increasing external cyber threats.

Further mitigations: Using as input the results from the maturity assessment, the Cyber Security Governance Board has defined the One DSM Cyber Security Program. Through this program we are implementing an overarching framework to manage cybersecurity risks on a global level, covering the domains of information technology, operations technology, and R&D laboratory systems.

Product quality

A food safety incident may arise due to (alleged) acts or omissions of DSM, our suppliers or other value chain partners and may have severe consequences for the health of consumers and negative financial and reputational impact for DSM. To reduce this risk, four initiatives were deployed over the last couple of years to complement our quality management systems: 1) growing as a learning organization, 2) high quality risk assessments, 3) improving standards, and 4) mindset and behavior. While the quality of our products is a constant focus, the risk of a quality incident remains.

With the shift to new markets and new product offerings, the importance of product quality increases further, whereas the risk of quality defects cannot be fully excluded.

Further mitigations: In addition to already high standards and corporate requirements with regards to quality, we are launching a program across our operations to further strengthen our quality procedures, building on our experiences from putting safety as first priority.

Emerging risks

The following emerging risks have been identified by the Executive Committee.

Climate physical risks

We may not be able to respond fast enough to the physical impacts of climate change on our operations, value chains and end-markets.

Climate transition risks

We may not be able to respond fast enough to the changes related to the transition to a net-zero world and the impact these will have on our operations, value chain and end-markets

Risk of increasing polarization in the world

This could lead to new legislation and new regulations that have a negative impact for our company (such as increasing taxation, trade barriers, sanctions and embargoes, and labor costs).

Environmental, Social and Governance (ESG) reporting risk

With ESG performance becoming more important and with increasing disclosure requirements, we might not be able to address all of these developments timely.

Climate-related risks

In 2020, we performed a desk study on physical risks for our sites that could lead to material financial impact in case of a prolonged shutdown. We mapped five emerging hazards (flooding, cyclones, wildfire, extreme heat, and water scarcity) against three IPCC climate temperature scenarios (RCP 2.6, RCP 4.5, and RCP 8.5), using three different time horizons (present, 2030, and 2040/2050). These scenarios were supplemented with additional data.

In 2021, the results from that study were validated with these sites in order to understand our risk exposure and resilience taking into account local circumstances and existing mitigations. The validations demonstrated that we already have mitigations in place for several of the risks identified through the desk study. We have concluded that water scarcity is the most material risk and needs to be actively monitored and managed. All sites with an increased water risk profile were already in scope of our water stewardship program.

In parallel, we piloted a transition risk assessment approach in two different businesses, one from the Materials cluster and one from the Nutrition cluster, covering more than a third of total sales. Using external data sources, such as International Energy Agency - World Energy Outlook, World Bank, and sector-specific sources such as the FAIRR initiative, we built forward-looking scenarios aligned with the IPCC temperature models and time horizons used for the physical risk assessments. Scenarios are evolving depending on external data availability and by adding parameters relevant for the businesses under review. Through the assessments both risks and opportunities are captured. The scope is not limited to our own operations but includes the full value chain impact on our business.

At this moment, no material short-term climate risks have been identified through specific climate risk assessments or regular risk assessments. Physical and transition risks are seen as emerging, with transition risks still expected to materialize this decade. Various climate-related opportunities are foreseen to have a meaningful contribution as well, such as methane reducing ruminant solution Bovaer®. The material risks identified through the climate risk assessments were integrated and are managed as part of our regular risk management processes.

We will continue to expand and update our physical risk assessments for our own operations as well as the rest of our value chains.

With the help of external parties, we are also exploring different approaches to assess vulnerabilities caused by climate change and increase our resilience. This will address both our own sites and our end-markets. Furthermore, we will roll out the transition risk assessments in the remaining businesses and continue to update our scenarios to reflect latest external insights.

COVID-19 related risks

In 2021, we continued to respond swiftly to the **impacts of the pandemic**. We ensured that people were safe and continued to serve our customers. Our financial performance was solid in 2021 and COVID-19 has demonstrated the relevance of our strategic focus on Health, Nutrition & Bioscience. Hence, COVID-19 was not considered a top risk, but the effects of the pandemic have been factored into the assessment of all other risks. This was consistent with the outcome of the Materiality matrix assessment.

In 2021, we focused on keeping our employees engaged, as working remotely was the standard for most of our office workers during a significant part of the year. For those workers whose activities had to be carried out within an operational setting, measures were put in place to ensure that these working environments were COVID-19-secure. Special attention was paid to mental wellness and increasing resilience, see People.

Other important risks

There are also more **generic business risks**, such as business continuity, sourcing, intellectual property, tax, and business process risks. Our risk management system is set up to adequately monitor and respond to these risks.

What still went wrong in 2021

The year 2021 presented us with many challenges as well as opportunities. The ongoing effects of the COVID-19 pandemic continued to place additional and unexpected demands upon our company and our people worldwide. At the same time, this was a pivotal year in DSM's transformation with the sale of our Resins & Functional Materials business and associated businesses, the integration of three acquired companies, and the establishment of three new Business Groups as we fully focus on becoming a Health, Nutrition & Bioscience company.

Despite the challenging circumstances, we applied our high standards with our usual rigor. Possible breaches of the DSM Code of Business Conduct were investigated and, if any form of infringement was found to have occurred, consequence management was applied (see DSM Code of Business Conduct for further information). Here we share the **most significant incidents** of 2021 across all three dimensions of People, Planet and Profit and not relating solely to breaches of the DSM Code of Business Conduct. This overview includes incidents with a financial impact as well as incidents regarding health, safety, environment, security and fraud, in all of which areas we have a low risk appetite.

In line with our reporting policy, this overview includes not only incidents but also **some serious near-misses**. Near-misses are cases that did not result in injury, illness or serious damage but which could have done so. Even when a crisis is averted, it is our responsibility to learn from it and do better in future. We have a process in place to collect information about incidents and serious near-misses as presented in this overview, using various sources including our internal Letter of Representation, and our reporting system for SHE and Security incidents.

Preventing incidents from reoccurring requires us to **understand each incident** to the best of our ability. When an incident occurs, our first priority is to take care of any injuries and repair any damage. We investigate every recordable incident using a fixed **root cause analysis** method and we trigger global improvement cycles, see Safety, health & well-being. We adjust requirements and processes and apply consequence management as needed.

People

Incidents involving falls

At DSM Nutritional Products in Lalden (Switzerland), an operator was stretching in the attempt to close a valve. He lost balance, falling to the ground and dislocating his shoulder.

At DSM's joint venture Yimante in Jingzhou (Hubei Province, China), an employee fell from height in a washing tower and suffered multiple rib fractures.

Incidents during process interruptions and maintenance work

At DSM Nutritional Products in Jiangshan (Jiangsu Province, China), an employee carrying out maintenance work on a vacuum pump lost the tip of a finger when the vacuum pump piston unexpectedly moved.

At DSM Nutritional Products in Jiangshan (Jiangsu Province, China), an employee conducting maintenance work was hit by the end cover of an air compressor which was still under pressure and broke his thigh.

At DSM Nutritional Products in Belvidere (New Jersey, USA), an employee lost the tip of a finger during the reinstallation of a piece of equipment.

At DSM Food Specialties in Yantai (Shandong Province, China), an employee lost a finger and the tip of another finger while he was trying to remove a blockage in a feeding pipeline.

At DSM Engineering Materials in Emmen (Netherlands), an employee injured the tip of a finger while removing polymer wires from the cutter of an extruder.

At DSM Nutritional Products in El Salto (Mexico), an operator suffered a head injury that required stitches when he was hit by a tool while starting up a blender. From the incident investigation we learned that the DSM safety rules and controls had been violated multiple times. Consequence management was applied, and organizational and procedural changes were implemented.

Incidents due to flash fires / explosions
At DSM Nutritional Products in Ambernath (India), a flash fire occurred at the dosing point where two employees were manually filling a reactor. The employees sustained first-degree burns to their hands and heads.

At DSM Nutritional Products in Mairinque (Brazil), a flash fire occurred during a normal restart procedure after a power shutdown. An employee sustained first- and second-degree burns to the upper body and there was material damage to the equipment.

At DSM's joint venture Yimante in Jingzhou (Hubei province, China), an employee sustained second-degree burns to his face when a flash fire occurred while he was cleaning a tank.

At DSM Nutritional Products in Sisseln (Switzerland), a small fire occurred in a formulation unit. causing the suspension of a production line for a few weeks. There were no personal injuries.

At DSM Nutritional Products in Kingstree (South Carolina, USA), a process interruption caused plugging in a feed line. During the restart of the process an internal ignition led to an explosion. There were no personal injuries.

At DSM's joint venture Yimante in Jingzhou (Hubei province, China), an implosion damaged a product storage tank causing a loss of production of multiple days. There were no personal injuries.

At DSM Nutritional Products in Esbjerg (Denmark), a runaway reaction occurred when a bacteria-containing product stream was being sterilized, damaging two valves in the production installation. There were no personal injuries.

Other health and safety incidents
At DSM's joint venture Olatein in Dieppe (France), a contractor working at height dropped a wooden board that fell six meters, hitting another contractor's foot. The contractor suffered a fracture of his big toe.

At DSM Food Specialties in Delft (Netherlands), two employees entered a production room filled with a mist. One experienced irritation to the eyes and the other irritation to the cheek.

At DSM Food Specialties in Yantai (Shandong Province, China), an employee fractured a toe when a poorly loaded pallet he was moving tilted, and his foot got stuck between the pallet and the floor.

At DSM Nutritional Products in Schenectady (New York, USA), an employee reported discomfort in his left knee after repetitively moving 50 kg drums onto a pallet. He was reassigned to physically less-demanding tasks.

At DSM Food Specialties in Wuxi (Jiangsu Province, China), a pallet slipped off a truck to the ground as unloading commenced, leading to a severe blow to the waist area of the truck driver, who suffered multiple fractured vertebrae.

At DSM Nutritional Products in São Paulo (Brazil), an employee was hit by a truck while making a business trip in a company car.

Incidents involving personal data
Unauthorized persons accessed the Office365 email account of an employee of one of our strategic IT partners. After a day, the employee noticed unusual behavior in the email account and alerted the DSM IT Security team. In the timeframe between the attack and its detection, a phishing mail was sent to a number of employees from the corrupted email account. Corrective and mitigating measures were immediately taken that stopped the attack the same day. No similar instances have been noticed since. The incident was reported to the Dutch Data Protection Authority.

Security incidents

While transporting for DSM Food Specialties in Mexico, a truck carrying DSM products was hijacked by armed thieves. The driver was threatened with firearms and required to hand over the vehicle and its consignment. The driver was released unharmed after the assault.

Planet

There were no serious reportable Planet incidents this year.

Profit

At DSM Food Specialties in Delft (Netherlands), the mechanical breakdown of a centrifuge led to a loss of production of more than a week.

At DSM Engineering Materials, two raw material suppliers declared force majeure, leading to a loss of production of multiple days at DSM.

At DSM Food Specialties in Delft (Netherlands), parts of equipment were incorrectly replaced during a maintenance stop, leading to a delay in restarting the production.

At Group Business Services (Latin America), irregularities in the purchasing process were detected, pointing to a fraud case in which multiple fraudsters were involved. Relevant processes and controls were reviewed and updated.

At DSM Nutritional Products in Freeport (Texas, USA), production needed to be stopped as a result of exceptionally low temperatures in February. The freezing of equipment, a power outage and material damage caused a loss of production of several days.

At DSM Nutritional Products in North America, a supplier delivered raw material which affected product quality and necessitated a product replacement in the case of one customer.

At DSM Nutritional Products, two suppliers of the same raw material declared force majeure, impacting the supply to multiple DSM sites, leading to a loss of margin.

Before the completion of the divestment of DSM Resins & Functional Materials in the first quarter of 2021, two suppliers declared force majeure, leading to a loss of production at multiple DSM sites.

Supervisory Board and Managing Board Royal DSM

Supervisory Board

Thomas Leysen (1960, m), Chair

First appointed: 2020. End of current term: 2024. Nationality: Belgian. Nomination Committee (Chair), Remuneration Committee (member). Last position held: CEO of Umicore; Supervisory directorships/other positions: Chair of the Board of Umicore; Chair of the Board of Mediahuis; Chair of the Belgian Corporate Governance Commission; Chair of the King Baudouin Foundation (until 31 December 2021).

John Ramsay (1957, m), Deputy Chair

First appointed: 2017. End of current term: 2025. Nationality: British. Audit Committee (Chair), Remuneration Committee (member). Last position held: Chief Financial Officer (CFO) and interim CEO of Syngenta AG. Supervisory directorships/other positions: Non-executive director of RHI Magnesita N.V., non-executive director of Croda International PLC.

Eileen Kennedy (1947, f)

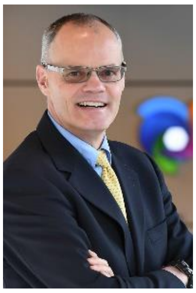
First appointed: 2012. End of current term: 2022. Nationality: American. Sustainability Committee (Chair), Nomination Committee (member). Position: Professor of Nutrition, Friedman School of Nutrition Science and Policy at Tufts University in Boston (USA); Supervisory directorships/other positions: Member, Board of Directors, Sight and Life Foundation.

Carla Mahieu (1959, f)

First appointed: 2021. End of current term: 2025. Nationality: Dutch. Remuneration Committee (Chair). Last position held: Global Head of Human Resources and Member of the Management Board of Aegon N.V.; Supervisory directorships/other positions: Non-executive member of the Board of VodafoneZiggo Group B.V. Netherlands; non-executive member of the Board of Arcadis; non-executive member of Stichting Continuïteit PostNL.

Erica Mann (1958, f)

First appointed: 2019. End of current term: 2023. Nationality: Australian. Sustainability Committee (member), Audit Committee (member). Last position held: Member of the Board of Management of the Bayer Group and Global President of Bayer's Consumer Health Division. Supervisory directorships/other positions: Non-executive member of the Board of Perrigo; non-executive member of the Board of Kellogg Company; non-executive member of the Board of Blackmores.



Frits Dirk van Paasschen (1961, m)

First appointed: 2017. End of current term: 2025. Nationality: Dutch and American. Remuneration Committee (member), Sustainability Committee (member). Last position held: CEO Starwood Hotels and Resorts. Supervisory directorships/other positions: Non-executive Board member Williams Sonoma (USA); Board member Sonder; Board member Crown Proptech Acquisitions; Chair Board of Convene; Board member of CitizenM Hotels (NL); Board member JCrew group; Advisor to private equity firm TPG, The Red Sea Project, the Indian School of Hospitality; CEO practice at Russell Reynolds; CEO and Founder of The Disruptor's Feast Advisory.

Pradeep Pant (1953, m)

First appointed: 2016. End of current term: 2024. Nationality: Singaporean. Audit Committee (member), Nomination Committee (member). Last position held: EVP and President APAC and EMEA of Mondelez International. Supervisory directorships/other positions: Honorary Council Member of Food Industry Asia; non-executive Director of Max India Ltd., MAX Life Insurance Co Ltd. (India), Antara Senior Living Ltd. (India) and NIVA BUPA Health Insurance Co. Ltd. (India); Chair of the Board of Blaine and Clyde Investments Pte Ltd. Asia Sustainable Foods; President of Pant Consulting Pte Ltd.

Corien Wortmann-Kool (1959, f)

First appointed: 2021. End of current term: 2025. Nationality: Dutch. Audit Committee (member), Sustainability Committee (member). Position: Chair of the Board of ABP Pension Fund. Supervisory directorships/other positions: Vice-Chair of the Supervisory Board of Aegon N.V.; Chair of the Board of Save the Children (NL); Advisory Board Member of the Impact Economy Foundation; Member of the Capital Markets Advisory Board of the Dutch Financial Markets Authority.

Managing Board

Geraldine Matchett (1972, f), Co-CEO

Position: Co-CEO & CFO since February 2020; member of the Managing Board since August 2014 and CFO since December 2014. End of current term: 2022. Nationality: British, French, Swiss. Supervisory directorships/other positions held: Non-executive Director of ABB; Board member of Catalyst Europe; Member of the HRH the Prince of Wales' A4S (Accounting 4 Sustainability) CFO Leadership Network; Board member of FCLTGlobal; Executive Committee Member of the World Business Council for Sustainable Development (WBCSD); Member of the Foundation Board of IMD Business School.
e-mail: geraldine.matchett@dsm.com

Dimitri de Vreeze (1967, m), Co-CEO

Position: Co-CEO & COO since February 2020; member of the Managing Board since September 2013. End of current term: 2025. Nationality: Dutch. Supervisory directorships/other positions held: Chairman Supervisory Board DSM Netherlands; Member Executive Committee and Board member of Cefic (European Chemical Industry Council) and Chair Sustainability Advisory Forum; Board member '*Fonds voor de topsport*' (NOC*NSF; Dutch Olympic Committee Fund for top sport); member Supervisory Board Sanquin; Chairman Young Captain Foundation; Chair of the ALV United World College Maastricht.
e-mail: dimitri.vreeze-de@dsm.com

Statements of the Managing Board

The Managing Board is responsible for the design and operation of the company's internal risk management and control systems. In discharging this responsibility, the Managing Board has made a systematic assessment of the effectiveness of the design and operation of the internal control and risk management systems.

On the basis of this report and in accordance with best practice 1.4.3 of the Dutch Corporate Governance Code of December 2016, and Article 5:25c of the Financial Supervision Act, the aforementioned assessment and the current state of affairs, to the best of its knowledge and belief, the Managing Board confirms that:

- DSM's internal risk management and control systems provide reasonable assurance that financial reporting does not contain any material inaccuracies
- There have been no material failings in the effectiveness of the internal risk management and control systems of the company
- There are no material risks or uncertainties that could reasonably be expected to have a material adverse effect on the continuity of DSM's operations in the coming twelve months
- There is a reasonable expectation that DSM will be able to continue its operations and meet its liabilities for at least twelve months, therefore it is appropriate to adopt the going concern basis in preparing the financial reporting

It should be noted that the above does not imply that these systems and procedures provide absolute assurance as to the realization of operational and strategic business objectives, or that they can prevent all misstatements, inaccuracies, errors, fraud and non-compliances with legislation, rules and regulations. Nor can they provide certainty that we will achieve our objectives.

In view of all of the above, the Managing Board confirms that, to the best of its knowledge and belief, the financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the company, and that the management report includes a fair review of the position at the balance sheet date and the development and performance of the business during the financial year 2021, together with a description of the principal risks and uncertainties that the company faces.

Heerlen, 1 March 2022

The Managing Board
Geraldine Matchett, Co-CEO
Dimitri de Vreeze, Co-CEO

Report by the Supervisory Board

Introduction by the Chair

Dear reader,

The resilience that DSM had demonstrated during 2020 in the face of the COVID-19 pandemic was shown once more in 2021. My colleagues and I on the Supervisory Board witnessed the company's care for its employees, its commitment to its customers, and its determination to keep creating brighter lives for all. In the process, DSM delivered another excellent operating result – a considerable achievement in a demanding and sometimes difficult operating environment.

It is against this background that I would like to thank my predecessor Rob Routs, who first joined the Supervisory Board in April 2010 and was appointed Chair in May 2011. Rob retired as Chair and member of the Supervisory Board at the close of the Annual General Meeting of Shareholders on 6 May 2021. Under his guidance, DSM continued its evolution into the purpose-led, performance-driven company it is today. We all owe a profound debt of gratitude to Rob for his deep insights, wise counsel and unfailing collegiality over the course of 11 years of service. We wish him every success for the future.

For my part, I am proud to have the opportunity to follow in Rob's footsteps as the company tackles some of the biggest challenges facing our world today. I would like to thank my colleagues on the Supervisory Board for their confidence in electing me as Chair, and I pledge to serve DSM to the utmost of my abilities. Since joining the Supervisory Board in May 2020, I have seen what a remarkable company DSM is – genuinely purpose-led and performance-driven in everything it does.

Despite the challenges created by the continuing pandemic in 2021, it was a pleasure for me to work with my colleagues on the Supervisory Board, and of course also with the Co-CEOs and the Executive Committee, throughout the year. Our interactions are characterized by an open style which encourages everyone to contribute their experience and expertise and, equally, allows everyone to raise challenges where these might be appropriate. I valued the regular interactions with our Co-CEOs Geraldine Matchett and Dimitri de Vreeze and also the direct and transparent interaction between the Supervisory Board and the Executive Committee.

Most of our meetings were, of necessity, virtual, but it was possible for me and my new Supervisory Board colleagues Carla Mahieu and Corien Wortmann-Kool to arrange visits to the Brightlands Campus in Geleen (Netherlands) as well as to the DSM site in Delft (Netherlands), during which we had the chance to visit the DSM Biotech Center.

In October, the Supervisory Board and Executive Committee also benefited from a site visit to DSM Austria GmbH – founded in 2021 after the 2020 acquisition of Erber Group, including Biomin and Romer Labs. We saw at first hand how the acquisition has further strengthened DSM's position in mycotoxin risk management and as a leading provider of sustainable feed and animal health solutions. It was an impressive experience, revealing a close congruence between the cultures of DSM and Erber. Interactions with our new colleagues were open and honest and it was good to see that the integration was well on track.

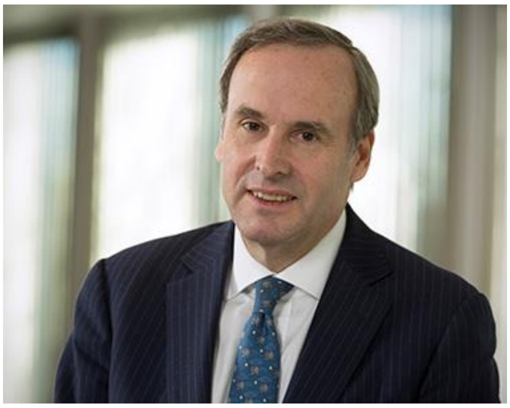
In September, DSM announced its strategic decision to focus its resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. This led to the decision to simplify the company's operating structure and reorganize its Health, Nutrition & Bioscience activities into three Business Groups, each with clear opportunities to benefit the health of people, the health of the planet and healthy livelihoods while supporting our growth plans. At the same time, we confirmed we had started a review of strategic options for our Materials businesses.

I am excited at the opportunities for our three new market-focused Business Groups – Food & Beverage; Health, Nutrition & Care; and Animal Nutrition & Health – which commenced active operation with effect from 1 January 2022. Each Business Group will be closely aligned with its respective customers and equipped to develop impactful, science-based, market-ready innovation at speed. I am also delighted that we took the bold step to define a range of specific and measurable Food System Commitments, along with accelerated sustainability targets. All these measures, which have the full support of the Supervisory Board, will help DSM to continue to live out its mantra of ‘doing well by doing good.’

As we look back on a year that brought challenges for so many people worldwide, I am pleased that our commitment to Safety, Health and Environment remained as strong as ever, delivering positive results across our global operations. I am glad to report that in 2021 our Frequency Index of Recordable Injuries improved to 0.22, versus a target of <0.24.

It only remains for me to thank our Co-CEOs, our Executive Committee and my colleagues on the Supervisory Board for their service to DSM in 2021, our employees for all their hard work and commitment, and also the many stakeholders who continue to place their trust in our company. We can look back on 2021 with satisfaction; and can look forward to 2022 with a strengthened sense of purpose. I am excited at the opportunities for our three market-focused Business Groups.

Thomas Leysen, Chair of the Supervisory Board



Supervisory Board Report

This Report provides further information on the way the Supervisory Board performed its duties in 2021. These include supervising the policy pursued by the Managing Board, the Managing Board’s performance of its managerial duties, and the general course of affairs within our company and its businesses, as well as assisting the Managing Board with advice, either upon request or proactively. Finally, these duties also include assessing the Managing Board’s performance and ensuring that their remuneration is in line with that performance and that it provides the appropriate incentives. Since the inception of an Executive Committee, the Supervisory Board has also been responsible for ensuring that the checks and balances that are part of the two-tier governance system are still taken into account, paying specific attention to the dynamics between the Managing Board and the Executive Committee.

The responsibility of supervising the policy pursued by the Managing Board includes evaluating the way the Managing Board implements DSM’s strategy for long-term value creation and promotes a culture aimed at creating value. In the performance of its duties, the Managing Board and Supervisory Board act in accordance with the interests of the company and weigh up the interests of all stakeholders, in line with DSM’s multi stakeholder approach. This is all described in the sections Strategy, People and Corporate governance and risk management.

Composition of the Supervisory Board

The composition of DSM's Supervisory Board is **diverse** in gender, nationality, background, knowledge and experience. The Board comprises four men and four women. Two members are Dutch, one American, one Dutch-American, one British, one Singaporean, one Australian and one Belgian. The Board's current members are Thomas Leysen (Chair), John Ramsay (Deputy Chair), Eileen Kennedy, Carla Mahieu, Erica Mann, Frits van Paasschen, Pradeep Pant and Corien Wortmann-Kool. For detailed information on their backgrounds, see the company website and Supervisory Board and Managing Board Royal DSM.

Following best practice 2.1.10 of the **Dutch Corporate Governance Code**, the Supervisory Board establishes that its members are able to act **critically and independently** of one another, the Managing Board and any particular interests involved. To safeguard this, the Supervisory Board is composed in such a way that all its members are independent in the meaning of best practice 2.1.8 of the Dutch Corporate Governance Code.

The **targeted profile** of the Supervisory Board is reflected in its regulations, which are published on the company website under 'Corporate Governance'. The Supervisory Board has **four committees** to cover key areas in greater detail: Audit, Nominations (to the Supervisory Board and Managing Board), Remuneration (of the Supervisory Board and Managing Board) and Sustainability. Information on these committees is given elsewhere in this section. The charters of the committees are published on the company website under 'Corporate Governance'.

Relationship and stakeholder management

In performing its duties, the Supervisory Board acts in accordance with the interests of the company and the business connected with it, taking into consideration the interests of the **company's stakeholders**. The Chair of the Supervisory Board is in regular close contact with the Co-CEOs, as is the Chair of the Audit Committee with the CFO.

Furthermore, the Supervisory Board regularly interacts with members of the **Executive Committee,** who attend Supervisory Board meetings and participate in the yearly site visit of the Supervisory Board.

The Supervisory Board interacts with our **employees** on various occasions and in various contexts. The Supervisory Board regularly receives information on relevant topics from senior leaders and experts in the company during committee meetings, full Supervisory Board meetings, annual site visits, and also as part of their ongoing professional education. In September 2021, we announced our strategic decision to focus our resources and capabilities to address the urgent societal and environmental challenges linked to the way the world produces and consumes food. The Supervisory Board was involved early on in this strategic process to contribute to the decisions and engage with the various topics. In addition, the Supervisory Board was involved in discussions around **merger & acquisition** (M&A) opportunities, such as the acquisition of First Choice Ingredients and the flavor and fragrance bio-based intermediates business of Amyris Inc., as well as large innovation projects resulting in the development of products such as Bovaer®, Veramaris®, EVERSWEET™ and CanolaPRO®. The Supervisory Board also performed a post-investment review of our second-generation bio-ethanol plant in Emmetsburg (Iowa, USA). During its annual site visit, the Supervisory Board actively takes the opportunity to interact with employees at different levels, from the shop floor to senior leadership, thus collecting valuable information and insights from various sources across the company.

Direct, **one-to-one contact** between Supervisory Board members and Managing Board and Executive Committee members generally follows naturally from topics discussed in the meetings of the Supervisory Board. These discussions draw on the expertise of individual Supervisory Board members, whose advice is sought on a wide range of specialist topics as required. Supervisory Board members also have direct contact with other employees in the course of the aforementioned site visits and specifically arranged meetings. The full Supervisory Board reviewed the company's new **Food System Commitments** together with members of the company's Sustainability department, and Eileen Kennedy had further in-depth discussions with the Senior Vice President Corporate & Nutrition Strategy. The Audit Committee discussed our efforts in the area of cybersecurity, and Pradeep Pant, who is based in Singapore and has extensive knowledge of and experience with Asian markets, continued to be in regular contact with our senior management in that region.

In 2021, due to the continued COVID-19 pandemic, most of the **meetings** were held virtually and face-to-face meetings could only be arranged on a few occasions. Examples of the meetings and visits that could take place include the **introductory visits** of Thomas Leysen, Carla Mahieu and Corien Wortmann-Kool to the DSM site in Delft (Netherlands), during which the DSM Biotech Center was visited; their visit to the Brightlands Campus in Geleen (Netherlands); and the **annual site visit** of the full Supervisory Board, together with the Executive Committee, to DSM Austria GmbH – founded in 2021 after the acquisition of Erber Group, including Biomin and Romer Labs. Due to COVID-19-related travel restrictions, Erica Mann participated virtually during this site visit to Austria.

The Supervisory Board takes an active interest in maintaining a good understanding of our **stakeholders** and their positions on various topics related to the company's areas of business. This includes the perceptions of our **shareholders**. The Supervisory Board is informed of the position of other DSM stakeholders by the Managing Board. In addition, the Supervisory Board collects such information through its own network.

DSM Supervisory Board: key data and attendance records

	Thomas Leysen (C)	John Ramsay (DC)	Eileen Kennedy	Carla Mahieu	Erica Mann	Frits van Paasschen	Pradeep Pant	Corien Wortmann-Kool
Diversity								
Year of birth	1960	1957	1947	1959	1958	1961	1953	1959
Gender	Male	Male	Female	Female	Female	Male	Male	Female
Geography	Europe	Europe	North America	Europe	Oceania	Europe / North America	Asia	Europe
Tenure								
Initial appointment	2020	2017	2012	2021	2019	2017	2016	2021
Latest reappointment	n.a.	2021	2020	n.a.	n.a.	2021	2020	n.a.
End of current term	2024	2025	2022	2025	2023	2025	2024	2025
Reappointment possible?	Y	Y	Y	Y	Y	Y	Y	Y
Attendance								
Committee memberships	NomCo (C) RemCo	AC (C) RemCo	SustCo (C) NomCo	RemCo (C)	AC SustCo	RemCo SustCo	AC NomCo	AC SustCo
Attendance of SB meetings[1]	100%	100%	100%	100%	90%[2]	100%	100%	100%
Attendance of Committee meetings	NomCo 100% RemCo 100%	AC 100% RemCo 100%	NomCo 100% SustCo 100%	RemCo 100%	AC 83%[2] SustCo 100%	RemCo 100% SustCo 100%	AC 100% NomCo 100%	AC 100% SustCo 100%

1 'Attendance' refers to the one physical Supervisory Board (SB) meeting and nine virtual meetings held in 2021. In addition to these meetings, there were also four virtual SB meetings in 2021 for which the decision-making had been mandated by the SB to the Chair of the Board and the Chair of the Audit Committee, who both participated in these calls.

2 Erica Mann missed the Supervisory Board call and Audit call in July due to other previously scheduled commitments. She gave advance input in writing or via other members.

DSM Supervisory Board: key competences

	Thomas Leysen (C)	John Ramsay (DC)	Eileen Kennedy	Carla Mahieu	Erica Mann	Frits van Paasschen	Pradeep Pant	Corien Wortmann-Kool
Competences								
General Management	x	x	x		x	x	x	
Finance/Accounting/Auditing	x	x						x
Strategy	x	x	x	x	x	x	x	x
Risk	x	x						x
Marketing & Sales	x				x	x	x	
Operations & Manufacturing	x				x			
R&D/Innovation/Technology	x		x					
Safety	x			x				
Sustainability & Environment	x		x	x		x		x
Emerging Economies		x			x	x	x	
People & Organization	x			x	x		x	
IT/Digital				x		x		
Governance/Compliance/Legal	x	x	x	x	x			x
Public Affairs	x			x	x			x
DSM's businesses	x		x		x		x	

Supervision and advice

The Supervisory Board performs its duties of supervising and advising the Managing Board with respect both to recurring standard agenda items for Supervisory Board meetings and to specific topics that become relevant at any given point in time.

Besides Safety, which is always the first topic on the agenda of every Supervisory Board meeting, the most prominent regular agenda item is an update on business performance, financials, treasury and investor relations topics. As part of this agenda item, the Supervisory Board tracks the company's financial performance, approves the annual Finance and Capital Expenditure Plan, is updated on capital markets expectations and deliberates on any additional treasury topics as needed. In 2021, the Supervisory Board also discussed and approved the usual share buy-back programs to cover commitments under share-based compensation plans and the stock dividend. In addition, the early redemption of a €500 million bond was discussed and approved.

Strategy is a key topic on the Supervisory Board's agenda. In 2021, the Supervisory Board was actively involved in the discussions on our decision to accelerate the company's strategic journey, including the reorganization of the company into a focused Health, Nutrition & Bioscience company and the start of the review of strategic options for our Materials businesses. The Supervisory Board also extensively discussed DSM's new Food System Commitments.

The Supervisory Board was also actively involved in the process of reviewing several potential M&A targets, which led in 2021 to the acquisition of the flavor and fragrance bio-based intermediates business of Amyris Inc. as well as the acquisition of First Choice Ingredients, a leading supplier of dairy-based savory flavorings. The Supervisory Board also discussed the company's precision & personalization activities and performed a deep dive on DSM's production site in Lalden (Switzerland) as well as a post-investment review on BP&S/POET. Also, DSM's key innovation projects were discussed with the Supervisory Board.

Site visits

Every year, the Supervisory Board visits DSM sites in a particular region. This fosters interaction with employees across different areas of the company and provides Supervisory Board members with opportunities for continuing education. This year's visit was fully dedicated to DSM Austria GmbH – founded in 2021 after the acquisition of Erber Group, including Biomin and Romer Labs. The visit deepened the Supervisory Board's understanding of DSM's specialty Animal Nutrition & Health business, and more specifically its capabilities in mycotoxin risk management, gut health performance management, and food and feed safety diagnostics.

The site visit started in Tulln, where the Managing Director of Biomin welcomed the Supervisory Board to its Campus, the global hotspot in mycotoxin research. The Supervisory Board was presented with an overview of Biomin's research activities, followed by a tour through the company's research facilities. Mycotoxin risk management includes creating awareness of, and offering unique and specific solutions for, mycotoxin deactivation. Biomin is also a major producer of phytogenic and probiotic feed alternatives to antibiotics, which strengthens DSM's position in the rapidly growing global eubiotics market for improving animal gut health. The tour continued with the opening of the new Analytical Center of Excellence Laboratory in Tulln which will be used to conduct nutritional analysis to help boost the nutrition, health and sustainability of livestock. Thereafter, the Supervisory Board received a presentation on Romer Labs, which is at the forefront of diagnostic technology, with innovative testing solutions for the analysis of mycotoxins in feed and food, food allergens and pathogens as well as veterinary drug residues. Romer Labs possesses accredited full-service labs in Austria, the UK, the US and Singapore.

The Supervisory Board and Executive Committee visit the Biomin laboratories in Tulln (Austria).

After the visit to the Campus in Tulln, the Supervisory Board travelled to Getzersdorf, where they received various presentations on Specialty Animal Nutrition & Health, the history of Erber, and the company's integration into DSM after the acquisition. The Supervisory Board received a tour through the Erber building, which was built according to geomantic and Feng Shui principles, being the first platinum LEED-certified building in Austria. Together with all the employees in Getzersdorf, the Supervisory Board attended the grand opening of DSM Austria, in the presence of the governor of Lower Austria, Johanna Mikl-Leitner and the Dutch ambassador to Austria, H.E. Aldrik Gierveld. The next day, a reception was organized at the residence of the Dutch ambassador to Austria to discuss DSM's and Austria's activities in the area of agriculture.

During various occasions throughout the visit, the members of the Supervisory Board interacted with DSM Austria's employees to get to know each other and ask questions. Employees and Supervisory Board members alike were impressed by the positive and transparent atmosphere. An evening was spent with local executives discussing the execution of DSM's strategy, its culture, and its approach to talent development, along with the further developments within DSM Animal Nutrition & Health. Finally, the Supervisory Board meeting of the following day gave the Supervisory Board the opportunity to share its impressions with the Executive Committee members who also participated in the site visit.

Supervisory Board meetings and performance evaluation

In 2021, the Supervisory Board held its five regular **meetings** and one regular call in the presence of the Managing Board and Executive Committee, as well as three additional calls also in the presence of the Managing Board and Executive Committee members. There were also four Supervisory Board calls in 2021 for which the decision-making had been mandated by the Supervisory Board to the Chair of the Board and the Chair of the Audit Committee, who both attended these calls. The Supervisory Board had one additional call to decide and approve on the appointment of Thomas Leysen as new Chair of the Supervisory Board at the close of the Annual General Meeting of Shareholders in 2021. On one date, a member was excused due to conflicting commitments. All meetings but one took place virtually as a result of the COVID-19 restrictions. The additional calls were needed to discuss and approve the acceleration of DSM's strategic journey and the announcement of our new Food System Commitments. The additional calls were also needed to discuss and approve possible acquisitions. Information on attendance of Board and Committee meetings can be found in the table in this Supervisory Board Report.

The Supervisory Board also convenes in the absence of the Managing Board, which usually happens either before or after a meeting.

An **evaluation** of the Supervisory Board is performed once every three years by an external advisor; the last took place in 2019. In the other two years, including 2021, the evaluation of the Supervisory Board is performed by means of a self-assessment consisting of a written survey, followed by in-depth, one-on-one interviews between the Chair and individual Supervisory Board members. Furthermore, the Deputy Chair interacted with all Supervisory Board members to assess the performance of the Chair. The outcome of the evaluation was presented to, and discussed with, the Supervisory Board in December, in the absence of the Managing Board.

The overall **feedback from the evaluation** in 2021 was again positive and the members feel that the Board functions well. The quality of the discussions, which include constructive challenging, were appreciated. The Supervisory Board members also praised the smooth transition to the new Chair of the Board, and all members strongly value the composition of the Supervisory Board in all its dimensions. Despite the fact that the members of the Supervisory Board miss the moments of personal interactions in the context of face-to-face meetings, there is a sense of collegiality and mutual trust. Some points for improvement were noted, whereby the Supervisory Board asked to spend even more time on deep dives into DSM's various businesses as well as to increase time on post-acquisition and post-investment reviews. The Supervisory Board also wants to spend more time on self-education, outside its regular meetings.

While the **Managing Board's performance** is (indirectly) also assessed as part of the evaluation, this happens throughout the year as part of the discussions on succession planning in the Nomination Committee. This applies particularly when the performance appraisals of Managing Board members are discussed, as well as their performance versus their individual targets in the Remuneration Committee. The Nomination and Remuneration Committees report back on these discussions to the Supervisory Board.

Committees

The Supervisory Board has **four committees** to cover key areas in greater detail: Nomination, Remuneration, Sustainability and Audit. These are described in more detail below.

Board nominations

The **Nomination Committee** comprises Thomas Leysen (Chair), Eileen Kennedy and Pradeep Pant. The Chair of the Remuneration Committee has a standing invitation to the Nomination Committee and participated in all five meetings. Geraldine Matchett, Dimitri de Vreeze and Cristina Monteiro, Executive Vice President People & Organization, were also involved in this Committee's discussions. The Committee met five times in 2021. The recommendations of all Nomination Committee meetings were shared with the entire Supervisory Board. This feedback included advice and recommendations regarding topics to be approved by the full Supervisory Board. The Supervisory Board also has access to all the meeting materials posted for the Nomination Committee meetings.

In 2021, discussions in this committee focused on **succession planning** for the Managing Board, the Executive Committee, and the Supervisory Board. With respect to the Executive Committee, the discussions focused on the replacement of Cristina Monteiro, who, as of 15 October took a temporary leave of absence due to family circumstances. It was decided that Geraldine Matchett, Co-CEO DSM, would assume the role of Executive Vice President People & Organization, ad interim, supported by CEO.works, led by Hein Knaapen, safeguarding the continuity of critical initiatives such as the roll-out of the P&O strategy and the further shaping of an inclusive and diverse culture while focusing on talent development and the talent pipeline.

As in other years, the Supervisory Board established that the composition of the Managing Board is, and will remain, diverse in nationality, gender, background, expertise and experience, and that it provides a good foundation to support all Business Groups in achieving their targets and thus delivering on the company strategy. For detailed background information on the Managing Board members, see the company website under Corporate Governance and in the Managing Board section of this Report.

Taking into account the Supervisory Board profile as laid down in the Supervisory Board regulations, the Nomination Committee continued discussions on the overall composition of the Supervisory Board and discussed **succession planning** for the Supervisory Board. At the 2021 Annual General Meeting of Shareholders, Carla Mahieu and Corien Wortmann-Kool were appointed to the Supervisory Board. Frits van Paasschen and John Ramsay were reappointed as members of the Supervisory Board. In addition, in view of Rob Routs stepping down as Chair of the Board with effect from the Annual General Meeting of Shareholders on 6 May 2021, Thomas Leysen was appointed by the Supervisory Board as his successor. In 2021, the Nomination Committee also discussed several profiles that could potentially replace Eileen Kennedy when she is to step down as member of the Supervisory Board at the 2022 Annual General Meeting of Shareholders.

Board remuneration

The **Remuneration Committee** had five meetings in 2021. Carla Mahieu (Chair), Thomas Leysen, John Ramsay and Frits van Paasschen are members of this committee. Recommendations of the Remuneration Committee meetings were shared with the full Supervisory Board and were used to determine the final remuneration of the members of the Managing Board. The Supervisory Board also has access to all the meeting materials provided for the Remuneration Committee meetings. For more information on the remuneration policy, see the company website. For the implementation of that policy in 2021, see the Renumeration report 2021.

Discussions focused on the **performance** and the related **remuneration** of the members of the Managing Board, in respect of both company and individual performance in 2021. The majority of discussion time in 2021 was spent on remuneration topics related to the Short-Term Incentive (STI) and Long-Term Incentive (LTI) scorecard. Attention was given both to the setting of targets for 2021 and to first estimates of performance against those targets, gender pay gap, equal pay, and next steps to be taken in the Remuneration Report in terms of disclosures. Initial discussions also took place on possible amendments to the company's remuneration policy. The performance and remuneration of the Executive Committee members were also shared with the Remuneration Committee. Geraldine Matchett, Dimitri de Vreeze and Cristina Monteiro were also partly involved in these discussions.

Sustainability

The **Sustainability Committee** prepares the Supervisory Board's discussions on sustainability topics. The Sustainability Committee met four times in 2021. This Committee comprises Eileen Kennedy (Chair), Erica Mann, Frits van Paasschen and Corien Wortmann-Kool. The Chair of the Supervisory Board has a standing invitation and participated in all meetings. The recommendations of these meetings were shared and discussed with the entire Supervisory Board during its meetings with the Managing Board. The Supervisory Board has access to all the meeting materials provided for the Sustainability Committee meetings. The feedback from the Committee to the full Board included advice and recommendations regarding topics to be approved by the Supervisory Board, in particular the sustainability reporting in this Report. Taking into consideration the draft Assurance report of the independent auditor on the Sustainability Information by KPMG, the full Supervisory Board approved the reporting against these topics on 1 March 2022. The assurance report was finalized by KPMG after the approval of the Supervisory Board. The Sustainability Information complies with the Standards of the Global Reporting Initiative and our internal reporting criteria, which are included in this Report, and is also aligned with the international Integrated Reporting Council <IR> Framework where possible.

During the year, recurring topics were the company's performance against its People and Planet aspirations, with a focus on safety, emissions reduction, Brighter Living Solutions, and Inclusion & Diversity. Through these discussions, the Sustainability Committee followed up on the progress made with the implementation of the sustainability and safety aspirations set as part of the company's strategy. Safety was extensively addressed, including an increased focus on the implementation of DSM's Life Saving Rules at newly acquired sites. In addition, the Sustainability Committee extensively discussed the company's new Food System Commitments as well as the implementation of a water target. The Sustainability Committee also performed a deep dive on our ESG KPIs, Precision Solutions, and the new sustainable portfolio steering methodology for Brighter Living Solutions. In terms of Inclusion & Diversity, the Sustainability Committee reviewed and discussed the company's performance as well as our long-term strategic ambitions.

Financials and auditing

The activities of the Supervisory Board in the area of financials and auditing are prepared by the Audit Committee. The Audit Committee met six times in 2021. John Ramsay (Chair), Pradeep Pant, Erica Mann and Corien Wortmann-Kool are members of the Audit Committee. All Supervisory Board members have a standing invitation to attend Audit Committee meetings. In 2021, most of them used this standing invitation for the two conference calls in which the financial developments and interim results for the first and third quarter were discussed, as these are not followed by a full Supervisory Board meeting. The Chair of the Supervisory Board participated in all meetings and calls. The highlights of all Audit Committee meetings were shared with the full Supervisory Board. This feedback included advice and recommendations regarding topics to be approved by the full Supervisory Board. In 2021, these included the approval of the 2021 COA Audit plan and the proposed reappointment of the external auditor (approved by the 2021 Annual General Meeting of Shareholders). All Supervisory Board members have access to all the meeting materials posted for the Audit Committee meetings.

Our external auditor KPMG, Geraldine Matchett in her capacity as CFO, and the Senior Vice President Group Controller participated in all the meetings of the Audit Committee. So did Dimitri de Vreeze in his capacity as Co-CEO, along with the managers responsible for internal audit, risk management and compliance, with the exception of the two meetings in which the financial developments and interim results for the first and third quarter were discussed. Four times a year, the Audit Committee meets with the external auditor without the Managing Board being present.

The Committee had in-depth discussions of the company's financials: the Finance plan, the Capital Expenditure plan, dividend proposals, the financial statements, and accounting policy changes. The discussions of internal risk management and control systems included the Internal Control Framework, compliance with recommendations and observations made by internal and external auditors, and the role and functioning of COA. This included the endorsement of COA's proposed audit plan for 2022, which was subsequently approved by the full Board, as well as the COA Vision 2023 document. As part of the Corporate Risk Assessment, the company's main risks and their mitigation were discussed. The Committee also discussed and evaluated cases submitted under the company whistleblower policy (DSM Alert), fraud cases, on-going litigation, and privacy compliance. Another recurring topic is our cybersecurity resilience, about which the Audit Committee is informed through a dashboard, as well as information on running cybersecurity programs and cybersecurity governance. In addition, the Audit Committee discussed the progress of the update of the Internal Control Framework.

Discussions were held with KPMG about the audit plan, management letter, audit report and financial statements for 2021, including managerial judgments and key accounting estimates. In its management letter, KPMG shared the outcome of its evaluation of the company's procedures and system of internal controls to the extent necessary within the scope of the audit of the financial statements. The observations of KPMG were presented along the pillars that support our in-control statement with a continued focus on the Internal Control Framework pillar (for the Statements of the Managing Board, and for a visualization of our control environment see Corporate governance). KPMG confirmed that DSM continued the journey of improving its Internal Control Framework. At the same time it also encouraged DSM to continue further improving, specifically in the area of documentation of controls. The management letter contained constructive recommendations to continue to monitor whether the organization is able to keep up with the rapid changes that the company is going through.

Finally, in 2021, the Audit Committee formally evaluated the **external auditor**, and discussed the reappointment of KPMG. The proposal to reappoint KPMG is based on the Audit Committee's own assessment of KPMG, on discussions with KPMG in the absence of management, and on the outcome of an evaluation among DSM executives.

Financial statements 2021

The Report by the Managing Board and the financial statements for 2021 were submitted by the Managing Board to the Supervisory Board, in accordance with the provisions of Article 30 of the Articles of Association, and were subsequently **approved** by the Supervisory Board on 1 March 2022. The financial statements were audited by KPMG, who issued an **unqualified opinion** (see the Independent auditor's report). The Supervisory Board established that the external auditor was independent of DSM.

The Supervisory Board will submit the 2021 financial statements to the **2022 Annual General Meeting** of Shareholders, and will propose that the shareholders adopt them and release the Managing Board from all liability in respect of its managerial activities and release the Supervisory Board from all liability in respect of its supervision of the Managing Board. The profit appropriation as proposed by the Managing Board and approved by the Supervisory Board is presented in the Profit section of this Report.

Remuneration report 2021

Introduction by the Chair of the Remuneration Committee

The COVID-19 pandemic once again had a significant impact on the daily life of our employees as well as our businesses in 2021. The number one priority remained as always to safeguard the safety, health and well-being of our employees. In January 2021, we paid a special COVID-19 bonus to our employees around the globe in recognition of their continuous efforts to keep the business on track during the pandemic. In all our operating facilities, measures were taken to reduce COVID-19 risks. Building on experiences gained in the course of the pandemic, DSM introduced a hybrid working concept, allowing for new, innovative ways of working. Support was provided in setting up safe and suitable workplaces at home, deploying initiatives to ensure compliance with occupational healthcare considerations when working from home.

Our businesses showed a strong financial performance in 2021 in dynamic market conditions, and we remained well on track on our People and Planet objectives. Good end-user demand drove the continued positive momentum of our Nutrition business while our Materials business recorded a very strong recovery from the impact of the COVID-19 pandemic. By actively managing the volatile dynamics of the global supply chain we remained able to meet the needs of our customers. Nutrition recorded strong organic sales growth, driven by very strong volumes in Animal Nutrition and Personal Care. Human Nutrition and Food Specialties recorded further good organic growth, building upon their strong performances in the prior year. Organic sales growth in Materials was close to 30% on the back of exceptional strong sales supported by supply disruptions and material shortages in the industry. Furthermore, Materials delivered a strong operational performance, successfully navigating global supply chain challenges as well as the disruptions caused by the semiconductor shortages impacting the automotive industry. In 2021, the divestment of our Resins & Functional Materials and associated businesses was successfully completed.

In September, we announced our intention to accelerate our strategic journey to become a company focused on Health, Nutrition & Bioscience, better placed to deploy our resources and capabilities to addressing the urgent societal and environmental challenges linked to the way the world produces and consumes food. The health and well-being of people, animals, and the planet are impacted by multiple systemic and interconnected food system challenges. DSM is well positioned to respond to these challenges, using advances in digital technology and bioscience that offer realistic scalable solutions to innovate and to create new markets. As a global leader, we have the opportunity, capability and therefore responsibility to apply our resources and expertise where these can have the greatest impact. By focusing exclusively on our activities in Health, Nutrition & Bioscience, we will be able to operate with greater agility and impact and meet the growing need for better and more sustainable food systems. Within this context, we are unlikely to be able to maximize the Materials businesses' full potential to drive the important industrial shift to a bio-based and circular economy. We are therefore reviewing strategic options for both Materials businesses, including a possible change of ownership.

In view of this, we have simplified the operating structure with effect from 1 January 2022. At the heart of our strategic direction is the creation of three market-focused Business Groups: Food & Beverage, Animal Nutrition & Health, and Human Nutrition & Care. Each Business Group will be much more closely aligned with its respective customers and (through the integration of research & development activities previously performed by the DSM Innovation Center) will be fully equipped to rapidly develop impactful, science-based, market-ready innovations. Our Business Groups are supported by global enabling functions. These functions have reviewed their operating model, focusing on their core role, aiming for simplification, and optimizing the use of digital technologies to maximize their contribution to achieving the three Business Groups' objectives.

Related to the strategic direction, we announced a series of new quantifiable commitments designed by 2030 help to address urgent societal and environmental challenges linked to how the world produces and consumes food. In doing so, we are one of the first companies in the consumer ingredient sector to make its societal impact explicit through a set of measurable Food System Commitments. Besides this, we announced that we will accelerate our greenhouse gas (GHG) emissions reduction target versus 2016, providing a firm foundation for the company to achieve net-zero by 2050.

In last year's Remuneration report, we announced a review of the Remuneration Policy for the Managing Board, considering the new strategic direction as well as the challenge of attracting senior international business leaders from a remuneration perspective. It was decided to take sufficient time for this review in consideration of the strategic update, the organizational restructuring, and our new quantifiable commitment to address challenges of the world's food systems, while allowing sufficient time to consult our main stakeholders.

The 2021 remuneration reported herein is fully aligned with the deployment of DSM's strategic objectives. In addition, we continued in 2021 to deliver improvements in customer-centricity, large innovation projects, integrating acquired businesses, cost control and operational excellence, resulting in sound results, which are reflected in the remuneration as presented in this report.

The Supervisory Board has taken a balanced approach toward the remuneration of the Managing Board. Whereas no base salary increase was applied for the Managing Board and the Executive Committee in 2020, the Supervisory Board decided to adjust base salaries for the Managing Board considering that our Co-CEOs' remuneration, at the beginning of their tenure, was positioned below the level of the previous CEO and clearly below the median of the peer group. After careful consideration of the impact of the pandemic, the Supervisory Board decided not to take any other remuneration measures in 2021.

I would like to thank my predecessor Pauline van der Meer Mohr who joined DSM's Supervisory Board in 2011 and chaired the Remuneration Committee since 2016. As member of the Supervisory Board, Pauline made many outstanding contributions to the transformation of the company, for which DSM is very grateful. As Chair of the Remuneration Committee, Pauline has been leading the way in establishing a balanced remuneration policy in line with DSM's purpose and strategy, reflecting both financial and non-financial targets while meeting new governance requirements. I like to express my deep appreciation for Pauline's professional and sound judgement and organizational savviness in this field. It is my privilege to take over from her and to build on the strong foundation which was put place under her leadership. We wish Pauline every success with her next endeavors.

This Remuneration report provides a summary of the remuneration policy for the Managing Board of Koninklijke DSM N.V. and the Supervisory Board of Koninklijke DSM N.V. respectively, as well as an overview of the remuneration of the members of the Managing Board and the Supervisory Board in the financial year 2021. The full remuneration policy as approved by the AGM in 2019 is published on the company website. This report is prepared in accordance with the relevant parts of Section 135 Book 2 of the Dutch Civil Code.

Carla Mahieu
Chair, Remuneration Committee

Remuneration of the Managing Board of Koninklijke DSM N.V. 2021

Summary of the remuneration policy Managing Board of Koninklijke DSM N.V.

The remuneration policy of the Managing Board is designed to attract and retain qualified leaders who can shape our purpose-led, performance-driven strategy, engage our people and other stakeholders, and ultimately achieve results – putting customers first and delivering on our company's promises. The policy provides clear focus: improving company performance and enhancing purpose-led, long-term value creation across multiple dimensions (People: individual and societal; Planet: ecological and sustainability; and Profit: economic and financial) while recognizing the interests of all our stakeholders (especially our customers, employees and shareholders, as well as society at large).

Remuneration is linked to company and individual performance. Based on the company's short- and long-term strategic objectives as well as our business drivers, results are measured on the basis of specified targets, balancing short- and long-term outcomes, serving the interests of all our stakeholders. To be competitive and to ensure alignment internally, Total Direct Remuneration offered by DSM approaches – from below – the median of a predefined peer group. Reward levels are benchmarked against the Dutch/European labor market peer group, while the design of various reward components is reviewed against the broader perspective of best market practices.

Labor market peer group

European industry peers:	Dutch AEX-listed peers:
- Clariant AG	- Koninklijke Ahold Delhaize N.V.
- Covestro AG	- Akzo Nobel N.V.
- Evonik Industries AG	- ASML Holding N.V.
- Givaudan SA	- Heineken N.V.
- Johnson Matthey Plc	- Koninklijke KPN N.V.
- LANXESS AG	- Koninklijke Philips N.V.
- Lonza Group AG	- Randstad N.V.
- Solvay SA	- Wolters Kluwer N.V.

The full version of the remuneration policy of the Managing Board Koninklijke DSM N.V., as approved by the 2019 AGM, is available on the company website. The following table specifies the elements of the remuneration policy, describing their purpose, design and link to our company strategy, as well as their potential value.

Purpose	Design and link to strategy	Value
Goal The goal of DSM's remuneration policy for the Managing Board is to offer an on-target total remuneration package approaching – from below – the median of the labor market peer group.		
Total Direct Compensation Is the basis for benchmark efforts, i.e., the reference to the labor market peer group.	Includes base salary and variable income. Variable income concerns the performance-related Short-Term Incentive (STI) and the STI deferral & matching plan, as well as the Long-Term Incentive plan (LTI). In addition, Managing Board members are entitled to certain benefits.	Value of each respective item is included hereafter.

Purpose	Design and link to strategy	Value
Base salary Basic pay for doing the job.	Aims to provide a fair and competitive basis for the total pay level in order to attract and retain qualified leaders. Annual review based on the market movement for executives based in the Netherlands and peer companies. Regular in-depth benchmark.	Base salaries at DSM approach – from below – the median of the labor market peer group.
Short-Term Incentive (STI) Incentive aligning short-term business objectives and business drivers with strategic company objectives. Driving pay for performance.	The Supervisory Board sets goals and targets for the respective performance year and determines the extent to which these have been achieved. By ensuring that strategic objectives are properly reflected in stretching yet achievable targets, the realization of strategic business objectives is addressed. Half of the at-target STI is linked to financial objectives; the other half is tied to sustainability aspirations and individual goals.	On-target performance: 50% of annual base salary. Maximum opportunity capped at 100%. Threshold: no STI pay-out in case the target for Adjusted EBITDA is not achieved to the level of at least 75%.
STI deferral & matching Ensures that longer-term considerations are sufficiently considered in pursuing short-term objectives.	Conversion of STI into shares, with a 1:1 company match delivered in Performance Share Units (PSUs). The PSUs vest upon the realization of predefined goals (same as LTI program), observing a three-year vesting period. By linking the vesting of the PSUs to the targets of the LTI program, it is ensured that decisions regarding short-term results are aligned with long-term value creation.	Mandatory conversion: 25% of STI achieved; voluntary conversion: 0–25%, with incremental steps of 5%. Maximum number of matching PSUs to vest is equal to number of PSUs granted.
Long-Term Incentive (LTI) Focus on long-term value creation. Designed to ensure that decisions made are in the long-term interests of all stakeholders and to ensure that interests of the Managing Board and the company stakeholders are aligned.	PSUs are awarded every year, to be converted into shares upon realization of predefined targets, observing a three-year vesting period. A five-year holding period (starting at grant date) applies. Performance goals are based on company strategy, driving long-term value creation. Half of the target LTI is linked to financial goals; the other half is linked to sustainability aspirations. Performance is measured over three financial years, starting with the year of grant.	Based on face value, the at-target grant equals 100% of base salary; the number of PSUs granted equals the maximum to vest (i.e., 150% of base salary). Therefore, the maximum vesting opportunity is 100% of the number of PSUs granted.
Shareholding requirement Aligning reward to the interests of stakeholders and emphasizing confidence in performance and strategy.	Managing Board members are expected to build up a shareholding in the company; the minimum shareholding requirement must be accrued in four years. Considered are shares privately purchased and vested shares granted under DSM share-based compensation plans.	The minimum share-holding requirement is 300% of annual base salary for both Co-CEOs and 200% for other Managing Board members.
Pension and other benefits Post-retirement remuneration contributing to the competitiveness of the overall package. Together with other benefits, creates alignment with market practice.	Mandatory enrollment in basic pension plan as applicable to all DSM employees in the Netherlands (Collective Defined Contribution). In addition, a company-paid contribution to allow participation in the so-called Net Pension Plan under conditions as applicable to Netherlands-based employees (Individual Defined Contribution). Other benefits include sick pay (aligned with Netherlands-based employees) and a company car.	Pension scheme aligned with plans in place for employees in the Netherlands. Other benefits aligned with market practice.

Purpose	Design and link to strategy	Value
Goal- and target-setting Goal- and target-setting are key to drive pay for performance aligned with Company strategy and to ensure that decisions made and results delivered are aligned with the interests of DSM's stakeholders.	The Supervisory Board sets goals, their respective weight and targets (i.e., metric to be achieved) for the respective performance year under the STI and LTI scheme, considering: - Company strategy - Focus on long-term value creation - Historical performance, business outlook, and circumstances and priorities - Stakeholder expectations - At target level, there is a 50:50 split between financial goals and sustainability/individual goals.	Targets must be stretching yet achievable.

The company website contains an overview of the main terms and conditions of employment of both Co-CEOs.

Total remuneration of the Managing Board 2021

Introduction
Actual remuneration for 2021 is fully aligned with the remuneration policy, which complies with EU requirements and Dutch legislation.

2021 was the first full year in which Geraldine Matchett and Dimitri de Vreeze were in charge as Co-CEOs. A comparison with 2020 is somewhat distorted, because the remuneration for that year was partly based on their capacity as a Member of the Managing Board and partly in their capacity as Co-CEOs.

Base salary
As already reported in the 2020 Remuneration report, a quick scan was conducted early 2021, benchmarking DSM's position within the labor market peer group as defined within the Remuneration Policy of the Managing Board of Koninklijke DSM N.V. Whereas the policy is to approach the median from below, the benchmark showed that DSM had dropped to the lowest position in the peer group as far as targeted total Direct Compensation (annual base salary plus targeted Short-Term Incentive plus targeted Long-Term Incentive) is concerned. As a first step to close the gap, the Supervisory Board decided to adjust annual base salary of the Co-CEOs to € 1,003,625 on annual basis per 15 February 2021. This adjustment reflects the fact that the annual base salary of the Co-CEOs was initially set below the level of their predecessor and considers the market movement of the peer group. After this adjustment and compared to the quick scan mentioned, the Co-CEOs' base salary moved toward the 25th percentile of the labor market peer group, whereas target Total Direct Compensation still remains below the 25th percentile.

Fixed annual base salary

in €	15 February 2021	15 February 2020
Geraldine Matchett	1,003,625	925,000
Dimitri de Vreeze	1,003,625	925,000

Goals and targets incentive programs
Our purpose as company is to create brighter lives for all. We are therefore in business to generate profitable growth while at the same time contributing to a better world. Our focus in 2021 was on developing innovative solutions addressing our three focus domains: Nutrition & Health, Climate & Energy, and Resources & Circularity. Our initiatives within these focus domains were brought together in the three pillars of our Brighter Living Agenda:

- improving our own operations (for example, by reducing our emissions)

- enabling our customers to deliver healthy and sustainable solutions by developing and providing products that, from a Triple-P perspective, stand out against mainstream products
- accepting and acting on our responsibilities as a corporate member of society

Our focus shifted in light of the strategic update announced in September 2021. With a growing global population, the world is facing multiple systemic and interconnected food system challenges that impact the health and well-being of people, animals and the planet. DSM has the capability and therefore the responsibility to make a meaningful impact on the world's food systems. Helping to bring about a positive transformation in global food systems also creates attractive new market opportunities for our company. With this new strategic focus, we are therefore staying true to our purpose of creating brighter lives for all.

Related to this framework, a broader set of key performance indicators (KPIs) was defined, some of them feature in our incentive programs. Added to this are financial targets that reflect our financial performance, since contributing to brighter lives goes hand in hand with profitable growth. The design of our Short- and Long-Term incentive plans emphasizes the importance of building long-term growth opportunities. Targets on energy efficiency and greenhouse gas (GHG) emission reduction and building our portfolio of Brighter Living Solutions underpin our commitment to contribute to a better world, while at the same time generating profitable growth in line with our key strategic goals (Adjusted EBITDA and Adjusted net operating free cash flow) and safeguarding employee safety and engagement (definitions are provided in the respective paragraph).

A comprehensive scenario analysis was initially conducted when the revised Remuneration policy was prepared. The analysis confirmed that neither the structure of the incentive schemes nor the nature of the goals would result in inappropriate pay-out levels. DSM's Remuneration policy is designed in the interest of long-term value creation, as is confirmed by a range of factors, including:

- the pay mix: the target value of the LTI has twice the target value of the STI
- the mandatory re-investment of any STI achieved in LTI and the vesting of the match provided on such investments is subject to targets with a long-term horizon
- the targets set for the STI or underlying the LTI grants are consistent with DSM's longer-term strategic financial and sustainability objectives

By this means, the structure of the policy is designed to ensure that the pursuit of short-term objectives does not prevail over the delivery of long-term results.

Short-Term Incentive (STI)

This report includes the STI achievement for 2021, payable in April 2022, and based on the base salary paid in 2021. Targets were set ahead of the STI cycle, in accordance with the Remuneration policy and with reference to the prior year, the budgets and the business plans for the performance year, ensuring that achievement of the threshold, target or maximum pay-out out are appropriately challenging.

Definitions of goals set for 2021 STI (total at-target weight is 50% of annual base salary):

- Adjusted EBITDA (weighting 12.5%): sum of the operating profit plus depreciation and amortization, adjusted for material items of profit/loss following acquisitions/divestments, restructurings and other circumstances deemed necessary
- Adjusted net operating free cash flow (10%): cash flow from operating activities, corrected for the cash flow of the Alternative Performance Measures (APM) adjustments, minus the cash flow of Capital expenditures and drawing rights
- Net sales growth (2.5%): net organic sales growth
- Brighter Living Solutions (BLS) (5%): is DSM's program for the development of sustainable, innovative solutions with environmental and/or social benefits, creating shared value for our stakeholders. Brighter Living Solutions are products, services and technologies that, considered over their life cycle, offer a superior environmental impact (ECO+) and/or a superior social impact (People+) when compared to the mainstream alternative for the same application.
- Safety (5%): based on the Frequency Index for recordable injuries

- Employee Engagement (5%): based on the High-Performance Norm in the industry
- Individual goals (10%): in 2021 the Managing Board / Executive Committee shared two team targets

The financial measures reflect our strategic growth ambitions while the targets related to Brighter Living Solutions, Employee Engagement and Safety relate to our Sustainability Commitments.

Within DSM's STI scheme, pay-out brackets are defined, considering the nature of the goal. A minimum threshold is set for each goal; an achievement below this threshold results in no pay-out with respect to that target. Over-performance results in a pay-out exceeding 100% where the maximum achievement is capped at 200% of the 'at-target' weighting of the respective goal. Goals, targets and pay-out schedules were defined at the beginning of the year, with defined brackets between 'threshold' and 'maximum'. The following table provides an overview of the realization of the 2021 STI targets.

2021 STI achievement

	Weight in % of base salary	Target definition			Achievement	Performance achieved	Pay-out in % of base salary	Pay-out
		Threshold[1]	Target	Maximum[2]				
Adjusted EBITDA	12.5%	≤ €1,635m	€1,725m	> €1,770m	€1,814	200%	25%	€248,451
Adjusted net operating free cash flow	10.0%	≤ €795m	€850m	> €905m	€949	200%	20%	€198,761
Net sales growth	2.5%	≤ 2.0%	4.0%	> 6.0%	13%	200%	5%	€49,690
Brighter Living Solutions	5.0%	≤ 57.0%	62.0%	> 68.0%	64%	100%	5%	€49,690
Safety	5.0%	≥0.26	0.24	≤ 0.21	0.22	150%	7.5%	€74,535
Employee Engagement	5.0%	≤ 70.5%	75.0%	> 79.5%	75.3%	100%	5%	€49,690
Individual value adding goals[3] (Between 0 and 200% of target)	10.0%					150%	15%	€149,071
Total STI achieved over performance year 2021							82.5%	€819,888

1 If threshold not achieved, no pay-out on respective goal.
2 If achievement at maximum or above, pay-out capped at 200% of weighted target.
3 In 2021, the Managing Board members had two strategic objectives related to the strategic transformation.

We delivered a strong performance as we continued to successfully navigate dynamic market conditions. Good end-user demand further boosted our sales, resulting in an organic sales growth of 13%. The net sales growth target was fully realized and capped at the maximum achievement of 200% (2020 achievement: 0%). The strong sales paired with exceptional operational excellence, translated into a step-up of 18% in Adjusted EBITDA, resulting in maximum achievement (2020 achievement: 0%). The Adjusted net operating free cash flow also improved by 9% compared to 2020, again resulting in maximum achievement. Following the carve out of our Resins & Functional Materials and associated businesses, the composition of our portfolio changed considerably. Continued innovations contributed to an at-target achievement of the BLS-target; 64% (against 63% in 2020) of our products qualify as outstanding compared to mainstream solutions. Our safety performance continued to improve as well in 2021. Compared to 2020, the Frequency Index improved from 0.24 to 0.22, resulting in an achievement of 150% of target. The simplification of our organizational structure and the redesign of the operating model of all our enabling functions as well as the strategic repositioning of our Materials' business had a significant impact on our employees. Nonetheless, we are proud that the Employee Engagement Score was maintained at the targeted level.

The combined realization resulted in a 2021 STI pay-out as included in the below overview (note: the 2020 STI was pro-rata linked to the base salary as respectively Member of the Managing Board and as Co-CEO).

Short-Term Incentive

in €	2021	2020
Geraldine Matchett	819,888	545,249
Dimitri de Vreeze	819,888	545,249

Short-Term Incentive deferral & matching (STI)

In addition to the mandatory deferral (25% of STI achieved), the Managing Board members decided to convert another 25% (maximum possible) of their STI into shares. This means that the Co-CEOs converted 50% of their STI into this long-term incentive, demonstrating their trust in the company strategy and their focus on the long term. A 1:1 grant of PSUs was implemented, as included in the following table. The 2021 grant was based on the STI achieved during 2020 and therefore on the 2020 terms and conditions partly tied to remuneration as Member of the Managing Board and partly as Co-CEO.

Grant of PSUs under the STI deferral & matching scheme

Number of PSUs	2021 grant (vesting 2024)	2020 grant (vesting 2023)
Geraldine Matchett	1,850	1,558
Dimitri de Vreeze	1,850	1,632

Long-Term Incentive (LTI)

2021 and 2022 grant

In 2021, 10,000 Performance Shares Units (PSUs) were granted (on 31 March) to each of the Co-CEOs (2020: 12,500). The grant is based on the annual base salary applicable on the grant date and the average share price in January of the year of grant. The 2022 grant (to be implemented 31 March) equals 8,500 PSUs for each Co-CEO. Any grant equals the maximum number of PSUs that may vest. The fact that the number of PSUs granted in 2021 and 2022 is lower compared to the foregoing year is a result of the share price appreciation.

Goal setting

Targets were set ahead of the LTI cycle, in accordance with the remuneration policy, ensuring that achievement of threshold, target or maximum vesting is challenging. The following goals were set for the LTI grants:

- Total Shareholder Return — TSR (weighting 25%): sum of capital gain and dividends paid, representing the total return to shareholders; the relative ranking (within the peer group) reflects the overall performance relative to our peers
- Return on Capital Employed — ROCE (25%): operating profit as percentage of weighted average capital employed
- Energy Efficiency Improvement — EEI (25%): the reduction of the amount of energy used per unit product (known as energy efficiency) on a three-year rolling average basis
- Greenhouse Gas Emissions — GHGE (25%): as of the 2019 grant: absolute reduction of greenhouse gas emissions in kilotons over performance; the target up to and including the 2018 grant is based on the reduction of greenhouse gas emissions per unit of product

Vesting 2018 grant

The performance period of the PSUs granted in 2018 was completed by year-end 2020: the actual vesting was on 31 March 2021. This concerns the PSUs granted under the Long-Term Incentive plan as well as the PSUs granted under the STI deferral & matching plan. The following vesting schemes applied.

TSR[1]		ROCE		EEI		GHGE Efficiency improvement	
Rank	% of PSUs granted that vest[2]	ROCE ultimo performance period	% of PSUs granted that vest[2]	EEI% (over a 3-year period)	% of PSUs granted that vest[2]	GHGE Efficiency improvement % (over a 3-year period)	% of PSUs granted that vest[2]
1	100	≥15.75	100	≥4.00	100	≥8.75	100
2	97	15.25 - <15.75	83	3.25 - <4.00	83	8.25 - <8.75	83
3	93	14.25 - <15.25	67	2.75 - <3.25	67	7.75 - <8.25	67
4	87	13.75 - <14.25	50	2.50 - <2.75	50	7.25 - <7.75	50
5	80	13.25 - <13.75	33	2.25 - <2.50	33	6.75 - <7.25	33
6	73	<13.25	-	2.00 - <2.25	17	6.25 - <6.75	17
7	67			<2.00	-	<6.25	-
8	50						
9	33						
10–15	-						

1 Peer group 2018 grant includes AkzoNobel, Arkema, BASF, Chr. Hanssen, Clariant, Croda International, DuPont/IFF, Evonik, Givaudan, Kerry, LANXESS, Lonza, Novozymes, Solvay.

2 Any PSU grant concerns the maximum number that may vest, 100% vesting included in this table means that the target has been achieved to the maximum level.

A strong share price appreciation resulted in the second rank on the relative Total Shareholder Return goal (same score applied for the 2017 grant that vested in 2020), resulting in an achievement of 145%; i.e., the vesting of 97% of the PSUs initially granted linked to this goal. The ROCE reported over 2020 of 10.3% is substantially below target on the back of several acquisitions in the period 2018-2020. When adjusted for these acquisitions, the ROCE improved to 12.2%, still below target. As the threshold was not achieved, no PSUs tied to this goal vested. On Energy Efficiency DSM realized an improvement of 9% over the performance period. During the 3-year performance period total GHG emissions were reduced by 30%. As a result, the vesting related to both sustainability goals was at maximum level. The below table provides an overview of the number of PSUs granted in 2018 that vested (i.e., converted to unconditional shares) on 31 March 2021. In total, 74.2% of the PSUs granted in 2018 vested (note: in 2020, 90.8% of the PSUs granted in 2017 vested). Since the number of PSUs granted equals the maximum number to vest, the vesting equals 111.3% of the targeted grant (136.3% in 2020).

PSUs granted in 2018 vested in 2021

Numbers of PSUs vested[1]	LTI	STI deferral & matching scheme
Geraldine Matchett	8,162	2,800
Dimitri de Vreeze	8,162	2,800

1 At vesting, a sell-to-cover applied: out of the vested shares, a number of shares are sold at vesting date to cover taxes due.

Pension and other benefits

Participation in the basic pension plan provided by the Dutch pension fund (*Stichting Pensioenfonds DSM Nederland* – PDN) to all DSM employees in the Netherlands is mandatory for the Managing Board. Regarding pensionable salary not covered by the basic pension plan, a company-paid pension contribution as determined by the Supervisory Board applies. This contribution can be used by Managing Board members to participate in the so-called Net Pension Plan under conditions applicable to all participating DSM employees. The company provides accident insurance cover, a company car, and a fixed representation allowance in line with market practice.

Total remuneration

Actual total remuneration for 2021 is fully aligned with the remuneration policy. The following table provides an overview of the total remuneration expense for the company in relation to the Managing Board in accordance with IFRS rules (these costs are not necessarily equal to compensation paid or the cash out for DSM).

Total remuneration expense for the Managing Board in accordance with IFRS definitions

x € thousand	Fixed		Variable compensation				Fixed		Fixed		Total		Proportion fixed / variable remuneration	
	Base salary / fees		Short-term incentive		Share-based compensation[1]		Pension expenditure		Other items[2]					
	2021	2020	**2021**	2020	**2021[3]**	2020[3]	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020
Geraldine Matchett	994	889	820	545	903	987	153	148	17	26	**2,887**	2,595	40:60	41:59
Dimitri de Vreeze	994	889	820	545	903	986	180	172	46	47	**2,943**	2,639	41:59	42:58
Total	1,988	1,778	1,640	1,090	1,806	1,973	333	320	63	73	**5,830**	5,234	41:59	41:59

1 Share-based compensation represents the expense of Performance Share Units (PSUs) awarded. These costs are considered over the vesting period and therefore cover several years. Against the opening price at vesting date (i.e., 31 March 2021), the 2021 vesting (the Co-CEOs together) represented the value of € 3.2 million (2020 €3.7 million), subject to a sell to cover.
2 Fringe benefits, such as company car and allowances.
3 Share-based compensation for 2021 concerns the grants in 2018 (partial), 2019, 2020 and 2021 (partial), share-based compensation for 2020 concerns the grants in 2017 (partial), 2018, 2019 and 2020 (partial).

In line with the outstanding company performance, the STI achieved over 2021 compared to 2020 went up, whereas the cost of Share based compensation (LTI) decreased due to the valuation and composition of the underlying series. Also considering the base salary adjustment, total remuneration expenses incurred in 2021 went up to € 5,830 million.

Equity-based compensation

Main characteristics

The main conditions of the share-based compensation are:

- Vehicle	Performance Share Units (PSUs), converted to shares at vesting
- Grant date	Last trading day in March
- Vesting period	Three years, starting at Grant date
- Vesting conditions	Realization predefined performance goals and in service at vesting date
- Performance period	Three performance years, starting 1 January in the year of grant
- Holding period	Five years, starting at Grant date
- Lock-up period	Blocking period chosen by incumbent; may result in tax discount

Outstanding Performance Share Units

The table below provides an overview of outstanding PSUs (granted under the LTI and STI deferral & matching scheme respectively).

Outstanding PSUs

	Year of issue	Outstanding at 31 Dec. 2020	In 2021			Outstanding at 31 Dec. 2021	Share price at date of grant (€)
			Granted	Vested	Forfeited / expired		
Geraldine Matchett	2018	13,800	-	(10,962)	(2,838)	-	80.04
	2019	15,052	-	-	-	15,052	97.74
	2020	14,058	-	-	-	14,058	105.00
	2021	-	11,850	-	-	11,850	147.40
	Total	**42,910**	**11,850**	**(10,962)**	**(2,838)**	**40,960**	
					Retained shares originated from PSUs	51,594	
Dimitri de Vreeze	2018	13,800	-	(10,962)	(2,838)	-	80.04
	2019	14,974	-	-	-	14,974	97.74
	2020	14,132	-	-	-	14,132	105.00
	2021	-	11,850	-	-	11,850	147.40
	Total	**42,906**	**11,850**	**(10,962)**	**(2,838)**	**40,956**	
					Retained shares originated from PSUs	42,722	

Upon expiration of their term, Dimitri de Vreeze exercised in 2021 the legacy stock options initially granted to him in 2013 (prior to his first appointment as a Managing Board member). During 2021, he exercised 6,000 stock options; the shares obtained were sold for an average share price of €150.47.

Outstanding stock options

	Year of issue	Outstanding at 31 Dec. 2020	In 2021		Outstanding at 31 Dec. 2021	Average share price at exercise (€)	Exercise price (€)	Expiry date
			Exercised	Forfeited / expired				
Dimitri de Vreeze	2013	6,000	(6,000)	-	-	150.47	48.91	7 May 2021
	Total	**6,000**	**(6,000)**	**-**	**-**			
Of which vested		6,000			-			

For employee information, as required by section 383d Book 2 of the Dutch Civil Code, reference is made to Note 27 Share-based compensation. On 31 December 2021, 1,665,073 (2020: 2,460,656) of the total number of treasury shares outstanding were held for servicing equity-based remuneration plans.

Shareholding obligation

In addition to the performance shares held on the basis of vested grants under the DSM Stock Incentive Plan, the Co-CEOs have invested in DSM shares. These shares were bought through private transactions with private funds (including shares purchased through STI deferral). The below table provides an overview of the number of shares held at year-end. The Co-CEOs significantly exceed the shareholding obligation (300% of base salary).

Managing Board holdings of DSM shares

	31 December 2021			31 December 2020		
	Ordinary shares purchased with private money	Holdings from vested PSUs	Total	Ordinary shares purchased with private money	Holdings from vested PSUs	Total
Geraldine Matchett	16,736	51,594	68,330	14,886	44,990	59,876
Dimitri de Vreeze	25,839	42,722	68,561	23,989	36,927	60,916
Total holdings	**42,575**	**94,316**	**136,891**	**38,875**	**81,917**	**120,792**

Company performance versus remuneration over time

Five-year review of company performance and Managing Board remuneration

The following table provides an overview of the development of the remuneration of the members of the Managing Board over the past five years, the development of company performance, and the average remuneration of other employees (excluding the Managing Board members). Total remuneration for Managing Board members consists of the remuneration expenses calculated in accordance with IFRS as included in the annual reports of the relevant years. The table provides an overview of company performance based on Adjusted EBITDA, share price (year-average) and the reduction of greenhouse gas emissions.

Typically, the share of total remuneration that is at risk varies for different employee segments and geographies, due to the impact of incentive schemes. While the percentage of variable pay as a percentage of total remuneration is highest for the Co-CEOs (at target 150%), it may be limited or nil for other employee segments or in certain countries (also because of collective agreements). Based on performance, the results of the respective incentive schemes (and therefore the impact on total remuneration) varies over time. The average remuneration of all other employees (excluding the Managing Board) is influenced not only by factors such as differences in the pay mix, or changes in exchange rates, but also by factors related to the composition of the employee population such as the impact of acquisitions and divestments, restructuring, and in- and outflow of personnel.

5-year overview of the year-on year-change of remuneration and company performance

		2021	2020	2019	2018	2017	Average
Managing Board remuneration							
Geraldine Matchett	Base salary	994	889	630	614	598	745
		11.8%	41.1%	2.6%	2.7%	1.4%	11.9%
	Total remuneration	2,887	2,595	2,182	2,269	1,855	2,358
		11.3%	18.9%	-3.8%	22.3%	12.0%	12.1%
Dimitri de Vreeze	Base salary	994	889	630	614	598	745
		11.8%	41.1%	2.6%	2.7%	1.4%	11.9%
	Total remuneration	2,943	2,639	2,175	2,188	1,749	2,339
		11.5%	21.3%	-0.6%	25.1%	3.9%	12.2%
Company performance							
Adjusted EBITDA[1]		1,814	1,534	1,551	1,532	1,445	1,575
		18.3%	-1.1%	11.8%[2]	6.0%	14.5%	9.9%
Year-average share price (€)		164.86	123.70	103.44	84.00	66.79	108.56
		33.3%	19.6%	23.1%	25.8%	24.4%	25.2%
Greenhouse gas emission improvement		14.8%	8.5%	12.7%	9.3%	4.1%	9.9%
Average employee remuneration							
Average remuneration employees global		86,860	84,169	84,320	84,500	85,841	85,138
		3.2%	-0.2%	-0.2%	-1.6%	0.9%	0.4%

1 Adjusted EBITDA as of 2019 reflects Adjusted EBITDA from Continuing Operations as per current scope. The Adjusted EBITDA for 2017 and 2018 reflects the Total Group.

2 EBITDA change versus a pro forma restated 2018 Adjusted EBITDA updated for Continuing Operations. EBITDA change versus 2018 reported Adjusted EBITDA 1.2%.

DSM's performance in 2021 improved compared to 2020. Over the last five years, the performance in terms of Adjusted EBITDA, share price appreciation and greenhouse gas emissions has been outstanding. The development of the share price (as included in the table) as well as the dividends paid over the years subscribe to this. Whereas the Managing Board remuneration expenses increased in 2020 as a consequence of the CEO change, the change in 2021 is merely driven by the improved business performance, resulting in a higher STI. This demonstrates that total Co-CEO remuneration fluctuates in accordance with the fluctuations in the Short-Term Incentive and the cost of the share-based compensation. Since for employees globally a lesser portion of their total remuneration is variable, the year-to-year change of the average remuneration of our employees globally (which includes all employee costs as included in Note 5 of the Consolidated Financial Statements) shows less fluctuations. In addition, the average remuneration of all employees is impacted by merger & acquisition activities and restructuring of our operations, while the adjustments of exchange rates also had an impact. Furthermore, the year-on-year change of the average employee cost globally, are influenced by the fact that the composition of the underlying employee population changes from year to year as a consequence of factors including retirements, new hires and restructurings.

Pay ratio

The pay ratio is calculated at 31 December 2021 and is based on the average remuneration expense reported for each Co-CEO and the total average employee cost. Intercompany comparisons must be made with caution, as differences in the composition of the workforce, the geographical spread or in pay structures may occur. The pay ratio will differ from year to year, since the variable pay (as a percentage of annual base salary) will differ from year to year based on company results. Given that their pay is to a larger extent at risk, such fluctuations have a higher impact at Managing Board or executive level, compared to the average variable pay of the employee group (limited or no variable pay component). The ratio will furthermore be influenced by differences in pay structures between regions, acquisitions/divestments and foreign exchange rates.

The Monitoring Committee Dutch Corporate Governance Code recommends a definition that considers ‘the hiring of external employees’ pro-rated, insofar as they are hired for at least three months during the financial year and whereby the average annual remuneration of the employees is determined by dividing the total wage costs in the financial year (as included in the consolidated annual accounts on an IFRS basis) by the average number of FTEs during the financial year. Until now, DSM calculated average annual employee remuneration based on headcount. As of 2021, this has been changed to FTE (the table below shows the impact over the last years). The calculation does not yet include ‘the hiring of external employees’, as the current data architecture does not allow a trustworthy combination of external employees (in FTE) and cost involved. Adjustments will be made to meet the criteria in due course.

	2021	2020	2019	2018	2017
CEO Pay ratio based on headcount	34	33	41	40	32
CEO Pay ratio based on FTE	34	31	40	40	31

At DSM, we believe that the remuneration throughout the organization should be based on the same principles and values but should also consider local regulations and practices. That means that we aim for a consistent global approach (median of the market reference) and consider local circumstances. This may, for example, result in a different pay mix between countries or for employee segments without jeopardizing our principles and values. That is how we built and internally align our remuneration policies, including the Remuneration policy for the Managing Board. Ratios do not necessarily provide a reflection of such considerations, as they ignore, among other things, the typical differences between fixed and variable pay in geographies and/or employee segments and are influenced by changing currency conversion rates as well as being vulnerable to M&A activities.

Due to the CEO change, the pay ratio dropped in 2020, since the remuneration package was set lower compared to the outgoing CEO, while equity-based compensation included series granted in the Co-CEOs' previous role. The 2021 ratio of total remuneration, including annual base salary, STI, LTI and other benefits such as pension (as reported in this Remuneration report) versus the average remuneration of total employees globally is 34:1 (2020: 31:1) for each of the Co-CEOs. As explained herein, the increase is merely a consequence of the higher Short-Term incentive over 2021 related to the outstanding results.

Underlying data for the pay ratio calculation can be retrieved from the table DSM's remuneration expense for the Managing Board (including table notes) in the section Total remuneration of this Remuneration report, as well as from the table Geographical information in Note 4 Segment information, and from the table Employee benefit costs in Note 5 Net sales and costs (continuing operations) to the consolidated financial statements.

Retrospect and outlook

Whereas the overall remuneration expenses in 2020 dropped compared to 2019 as a consequence of the CEO change, the remuneration expense in 2021 increased compared to 2020. In this respect, it is to be considered that (until 15 February 2021) the base salary of the Co-CEOs was positioned below base salary of the outgoing CEO, whereas the share units granted to the Co-CEOs in 2018 and vesting in 2021 concerned a grant based on their base salary as Managing Board members (this effect will also occur in 2022).

Considering the strategic update provided in 2021 and the pending review of the Remuneration policy, the Supervisory Board has decided that the goals underlying the Short- and Long-Term Incentive schemes will not be adjusted for 2022. This review was initiated in view of, among other factors, a quick scan conducted early in 2021 and benchmarking DSM's position within the labor market peer group as defined within the Remuneration policy. The scan showed that DSM had dropped to the lowest position in the peer group as far as targeted total Direct Compensation (annual base salary plus targeted Short-Term Incentive plus targeted Long-Term Incentive) is concerned and was far from approaching the median from below as set out in the Remuneration policy. Although DSM in general has a compelling proposition to attract talent, the company faces more and more difficulties in attracting and retaining senior leaders (one or two reporting levels below the Executive Committee). This is due to the fact that the remuneration of the Managing Board sets a ceiling especially with regard to Short- and Long-Term Incentives. Together with the fact that the Managing Board's targeted Total Direct Remuneration is positioned below the 25th percentile of the labor market peer group, action was required. In the meantime, a policy review project has started. This was necessary on the one hand to further align actual remuneration of the Managing Board with the market and on the other hand to enable DSM to submit compelling and competitive remuneration propositions to attract and retain senior talents that will help shape the company's future success. The review project is well under way. In the course of 2022, we will consult with investors and proxy advisors to explore views and opinions.

Remuneration of the Supervisory Board of Koninklijke DSM N.V. 2021

Summary of the Remuneration policy Supervisory Board of Koninklijke DSM N.V.

The Remuneration policy is designed to engage qualified leaders with the right balance of personal skills, competences and experience required to oversee the execution of the company's strategy, its performance and its creation of long-term value, recognizing the interests of all stakeholders. In line with the Dutch Corporate Governance Code, the remuneration is not linked to company and individual performance. As a reference, the remuneration of the Supervisory Board is benchmarked to market practice, predominantly against AEX companies, given the company's country of domicile. The total fixed remuneration should approach the median of the reference market. The full version of the remuneration policy for the Supervisory Board of Koninklijke DSM N.V. as approved by the 2019 AGM is available on the company website.

The table below summarizes the key elements of the remuneration policy, describing purpose, design and (potential) value.

Purpose	Design	Value
Fixed fee Basic pay for doing the job	Reward Supervisory Board members and incentivize them to utilize their skills and competences to the maximum extent possible in executing their tasks. The reward reflects the nature of responsibilities, the time spent, and aims to provide a fair and competitive pay level to engage qualified leaders. Review: in principle, every three years, based on in-depth benchmarking.	Approaching the median of the market reference (predominantly AEX companies). Position and annual fee: - Chair €105,000 - Deputy Chair €75,000 - Member €70,000 - Chair Audit Committee €18,500 - Member Audit Committee €12,000 - Chair other Committees €14,000 - Member other Committees €8,500
Intercontinental travel fee	Fixed amount representing time commitment related to intercontinental travel.	€5,000 for each time it is required to travel outside the continent of residence.
Expenses	Expenses incurred in fulfilling duties are reimbursed. To be paid upon submission of a statement of expenses, partially covered by a fixed allowance.	Depending on level of expenses. Fixed per annum: €1,250.
Shareholding requirement	In line with Dutch Corporate Governance Code, no mandatory shareholding requirement. Supervisory Board members are encouraged to invest in privately owned DSM shares.	Not applicable.
Benefits and loans	Supervisory Board members are not entitled to participate in any benefits program offered to employees. Loans will not be provided.	Not applicable.

Total remuneration 2021

Committee overview

The Supervisory Board members are assigned to the various committees.

Committee overview	Audit	Nomination	Remuneration	Sustainability
Thomas Leysen (Chair as of 6 May 2021)		Chair	Member	
John Ramsay (Deputy Chair as of 6 May 2021)	Chair		Member	
Rob Routs (Chair until 6 May 2021)		Chair	Member	
Pauline van der Meer Mohr (Deputy Chair until 6 May 2021)		Member	Chair	
Eileen Kennedy		Member		Chair
Carla Mahieu (as of 6 May 2021)			Chair	
Erica Mann	Member			Member
Frits van Paasschen			Member	Member
Pradeep Pant	Member	Member		
Corien Wortmann-Kool (as of 6 May 2021)	Member			Member

Total Remuneration

The table provides an overview of total remuneration provided in 2021.

Remuneration of Supervisory Board Members

in €	Fixed						Total remuneration		Portion fixed/variable compensation	
	Annual fee		Committee fee		Other costs[1]					
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Thomas Leysen, Chair as of 6 May 2021	90,417	40,833	21,667	11,958	1,250	729	113,334	53,520	100:0	100:0
John Ramsay, Dep. Chair as of 6 May 2021	72,917	70,000	27,000	27,000	1,250	1,250	101,167	98,250	100:0	100:0
Rob Routs, Chair until 6 May 2021	43,750	105,000	9,375	22,500	521	1,250	53,646	128,750	100:0	100:0
Pauline van der Meer Mohr, Dep. Chair until 6 May 2021	31,250	75,000	9,375	22,500	521	1,250	41,146	98,750	100:0	100:0
Eileen Kennedy, Member	70,000	70,000	22,500	22,500	6,250	6,250	98,750	98,750	100:0	100:0
Carla Mahieu, Member as of 6 May 2021	40,833	-	8,167	-	729	-	49,729	-	100:0	n.a.
Erica Mann, Member	70,000	70,000	20,500	20,500	1,250	6,250	91,750	96,750	100:0	100:0
Frits van Paasschen, Member	70,000	70,000	18,458	20,500	11,250	6,250	99,708	96,750	100:0	100:0
Pradeep Pant, Member	70,000	70,000	20,500	20,500	11,250	6,250	101,750	96,750	100:0	100:0
Corien Wortmann-Kool, Member as of 6 May 2021	40,833	-	11,958	-	729	-	53,520	-	100:0	n.a.
Victoria Haynes, Member until 8 May 2020	-	29,167	-	8,542	-	521	-	38,230	n.a.	100:0
Total	600,000	600,000	169,500	176,500	35,000	30,000	804,500	806,500	100:0	100:0

1 Involves International travel fee, expenses allowance and expenses exceeding expenses allowance.

In line with the remuneration policy, variable compensation does not apply, and Supervisory Board members do not participate in any pension scheme. No extraordinary items apply. The total remuneration of the Supervisory Board is at the same level as was the case during 2020. Note that in both years most meetings were virtual, resulting in relatively low travel costs (included in 'Other costs')

Benefits and loans

Members of the Supervisory Board are not eligible for any benefit programs offered by the company (or any beneficiary) to its employees, nor are any loans provided.

Equity-based compensation

As confirmed in the remuneration policy, Supervisory Board members do not receive any equity-based compensation. They are, however, encouraged to hold privately owned shares in DSM. At year-end 2021, Thomas Leysen held 5,035 shares (2020: 5,035) and John Ramsay held 1,068 shares (2020: 1,057). No other Supervisory Board members held company shares at year-end 2021.

Remuneration over time

The below table provides an overview of the total remuneration of the Supervisory Board members over a five-year period. A comparison of the development of total remuneration compared to company performance is not provided, as the Supervisory Board's total remuneration is not linked to company performance (Dutch Corporate Governance Code and remuneration policy of the Supervisory Board Koninklijke DSM N.V.).

5-year overview of the Supervisory Board remuneration

	2021	2020	2019	2018	2017	5-years average[1]
Thomas Leysen, Chair as of 6 May 2021	113,334	53,520	-	-	-	
John Ramsay, Dep. Chair as of 6 May 2021	101,167	98,250	97,000	82,450	51,605	
Rob Routs, Chair until 6 May 2021	53,646	128,750	123,125	107,250	107,250	
Pauline van der Meer Mohr, Dep. Chair until 6 May 2021	41,146	98,750	95,208	82,250	82,250	
Eileen Kennedy, Member	98,750	98,750	110,292	90,250	94,250	98,458
Carla Mahieu, Member as of 6 May 2021	49,729	-	-	-	-	
Erica Mann, Member	91,750	96,750	67,251	-	-	
Frits van Paasschen, Member	99,708	96,750	114,125	102,250	68,270	
Pradeep Pant, Member	101,750	96,750	109,125	98,250	102,250	101,625
Corien Wortmann-Kool, Member as of 6 May 2021	53,520	-	-	-	-	

1 Average only calculated if the respective Supervisory Board member was engaged during five whole years.

Closing remarks and shareholder vote

The 2019 AGM approved the remuneration policy for the Supervisory Board of Koninklijke DSM N.V. (98.45% in favor) as well as the remuneration policy for the Managing Board of Koninklijke DSM N.V. (97.48% in favor). The total remuneration delivered in 2021 is aligned with the respective remuneration policies: no deviations or derogations applied. As in 2020, no revision or claw-back of any incentives occurred in 2021.

The remuneration for the financial year 2021, as described in this report, is subject to an advisory vote at the 2022 AGM. Questions raised in the 2021 AGM regarding remuneration items were addressed in the respective meeting (reference is made to the Q&A document and minutes of that meeting, posted on the company website). As a result, there were no specifics raised that needed to be addressed in this Remuneration report.

Heerlen, 1 March 2022

The Supervisory Board
Thomas Leysen, Chair
John Ramsay, Deputy Chair
Eileen Kennedy
Carla Mahieu
Erica Mann
Frits van Paasschen
Pradeep Pant
Corien Wortmann-Kool

Information on the DSM share

Shares and listings

Ordinary shares in Koninklijke DSM N.V. are listed on the **Euronext stock exchange** in Amsterdam (Netherlands) (Stock code 00982, ISIN code NL0000009827). **Options** on ordinary DSM shares are traded on the **European Option Exchange** in Amsterdam (Euronext.liffe). In the US, a sponsored unlisted American Depositary Receipts (ADR) program is offered by Deutsche Bank Trust Co. Americas (DR ISIN US7802491081), with four ADRs representing the value of one ordinary DSM share.

Besides the ordinary shares, 44.04 million **Cumulative Preference Shares A** (cumprefs A) are in issue, which are not listed on the stock exchange; these have been placed with institutional investors. The cumprefs A have the same voting rights as ordinary shares, as their nominal value of €1.50 per share is equal to the nominal value of the ordinary shares.

The **dividend percentage** of the cumprefs A is based upon the dividend yield of the ordinary shares (dividend as a percentage of the average share price). This percentage may be increased or decreased by a mark-up or discount of no more than one hundred (100) basis points, to be determined by the Managing Board in consultation with the Supervisory Board. The basis of computation of the dividend on the Cumulative Preference Shares is €5.2942.

Transfer of the cumprefs A requires the approval of the Managing Board, unless the shareholder is obliged by law to transfer his shares to a previous shareholder.

The average number of **ordinary shares outstanding** in 2021 was 172,647,995. All shares in issue are fully paid. On 31 December 2021, the company had 172,968,730 ordinary shares outstanding.

Issue of shares

The **issue of shares** takes place by a decision of the Managing Board. The decision is subject to the approval of the Supervisory Board. The scope of this power of the Managing Board shall be determined by a resolution of the General Meeting of Shareholders and shall relate to at most all unissued shares of the authorized capital, as applicable now or at any time in the future. In the Annual General Meeting of Shareholders of 6 May 2021 this power was extended up to and including 6 November 2022, on the understanding that this authorization of the Managing Board is limited to a number of ordinary shares with a nominal value amounting to 10% of the issued capital at the time of issue, and to an additional 10% of the issued capital at the time of issue in connection with a rights issue. The issue price will be determined by the Managing Board and shall as much as possible be calculated on the basis of the trading prices of ordinary shares on the Euronext Amsterdam Stock Exchange.

Distribution of shares

Under the Dutch Financial Markets Supervision Act, **shareholdings of 3% or more** in any Dutch company must be disclosed to the Netherlands Authority for the Financial Markets (AFM). According to the register kept by the AFM, the following shareholders had disclosed that they have a direct or indirect (potential) interest between 3% and 10% in DSM's total share capital on 31 December 2021:

- ASR Nederland N.V.
- BlackRock, Inc.
- Capital Research and Management Company
- NN Group N.V.
- Rabo Participaties B.V.

Repurchase of own shares

The company may acquire **paid-up own shares** by virtue of a decision of the Managing Board, provided that the par value of the acquired shares in its capital amounts to no more than one tenth of the issued capital. Such a decision is subject to the approval of the Supervisory Board. In the Annual General Meeting of Shareholders of 6 May 2021, the Managing Board was authorized to acquire own shares for a period of 18 months from said date (i.e., up to and including 6 November 2022), up to a maximum of 10% of the issued capital, provided that the company will hold no more shares in stock than at maximum 10% of the issued capital.

On 29 April 2021, DSM announced it had canceled 6.6 million ordinary shares, thereby concluding the reduction in share capital following the share buyback program executed in the period 1 April 2019 to February 2020. 6,638,971 ordinary shares held in treasury since the execution of the share buyback program have been canceled. The total number of issued shares is therefore reduced to 218,826,029 (previously 225,465,000), consisting of 174,786,029 ordinary shares and 44,040,000 Cumulative Preference Shares A. In accordance with regulatory requirements, DSM has notified the Dutch Authority for the Financial Markets (AFM) of the change in its issued share capital.

In 2021, DSM **repurchased 1,050,000** of its own shares for a total consideration of **€165 million** for the purpose of covering the company's commitments under existing share-based compensation plans and shares for stock dividend.

Development of the number of ordinary DSM shares

	2021			2020
	Issued	Repurchased	Outstanding	Outstanding
Balance at 1 January	181,425,000	9,205,661	172,219,339	172,448,755
Changes:				
Cancellation of issued shares	(6,638,971)	(6,638,971)	-	-
Reissue of shares in connection with share-based payment plans	-	(803,049)	803,049	1,460,174
Repurchase of shares	-	1,050,000	(1,050,000)	(2,876,035)
Bearer share certificates that have become void	-	7,466	(7,466)	-
Dividend in the form of ordinary shares	-	(1,003,808)	1,003,808	1,186,445
Balance at 31 December	174,786,029	1,817,299	172,968,730	172,219,339
DSM share prices on Euronext Amsterdam (€ per ordinary share):				
- Highest closing price			199.40	148.55
- Lowest closing price			136.55	87.52
- At 31 December			198.00	140.80
Market capitalization at 31 December (€ million)[1]			34,608	25,545

1 Source: Bloomberg.

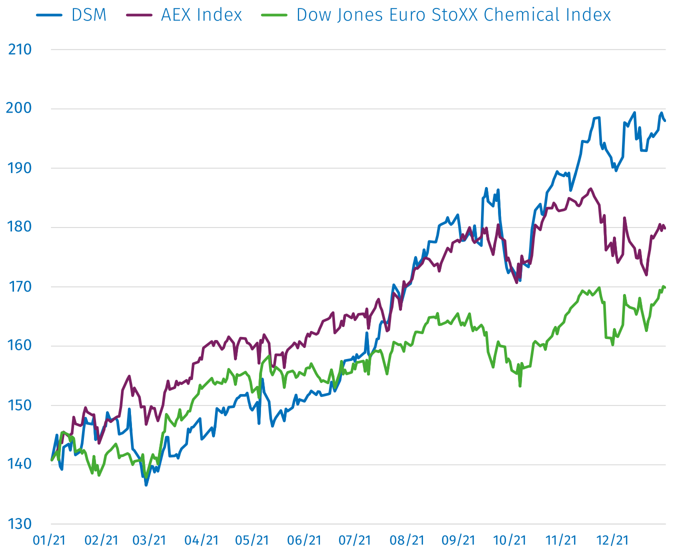
Geographical spread of DSM shares outstanding

in % (excl. cumprefs A)	2021	2020
North America	35	39
United Kingdom	17	16
France	13	12
Netherlands	11	10
Nordic	7	6
Switzerland	6	5
Germany	5	4
Asia Pacific	4	4
Other countries	2	4

DSM Share price development versus AEX and Dow Jones Euro StoXX Chemical Index

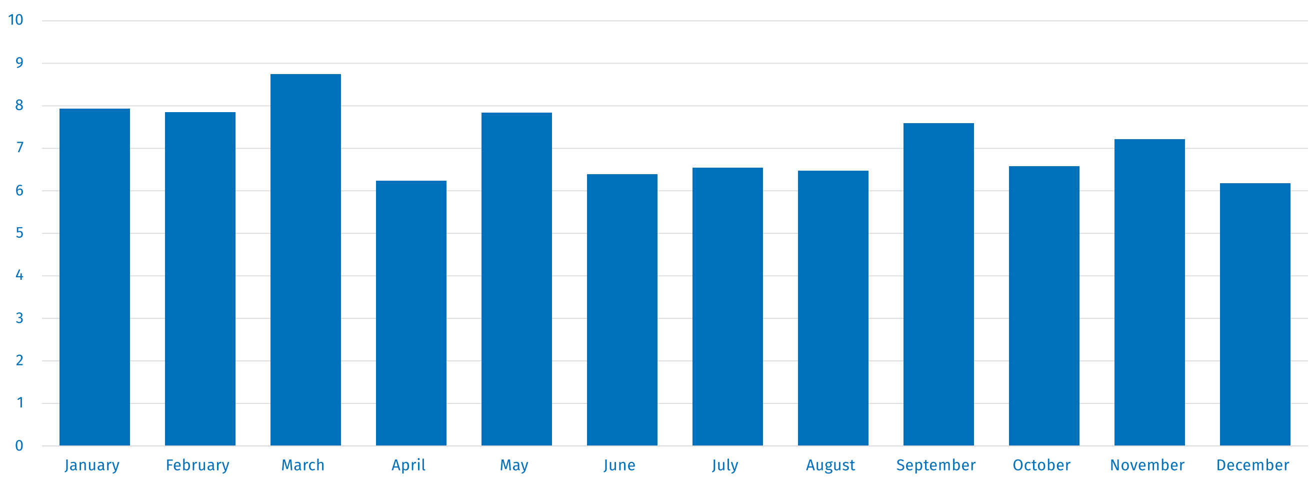
rebased versus DSM share price

in €



Trading volume ordinary DSM shares 2021

x million shares as reported by Euronext Amsterdam



Article 10 of Directive 2004/25

With regard to the information referred to in the Resolution of article 10 of the EC Directive pertaining to a takeover bid which is required to be provided according to Dutch law, the following can be reported:

- Information on major shareholdings can be found above (Distribution of shares)
- There are no special statutory rights attached to the shares of the company
- There are no restrictions on the voting rights of the company's shares. When convening a General Meeting of Shareholders, the Managing Board is entitled to determine a registration date in accordance with the relevant provisions of the Dutch Civil Code
- The applicable provisions regarding the appointment and dismissal of members of the Managing Board and the Supervisory Board and amendments to the Articles of Association can be found in the section Corporate governance and risk management
- The powers of the Managing Board regarding the issue and repurchase of shares in the company can be found in the sections Issue of shares and Repurchase of own shares above
- Other information can be found in the 'Notes to the consolidated financial statements' (16 Equity, 19 Borrowings, 27 Share-based compensation)

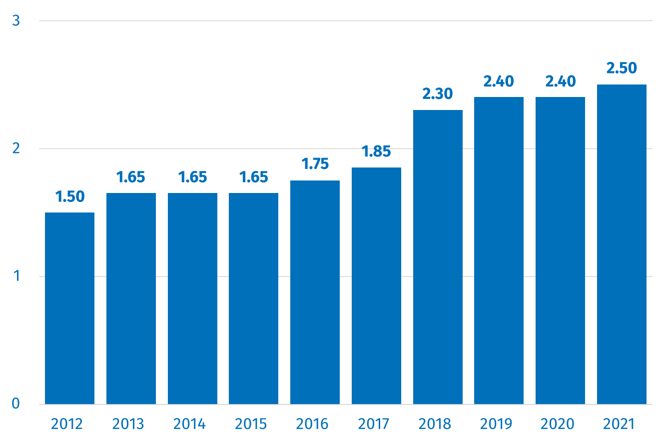
Dividend on ordinary shares

DSM's dividend policy is to provide a stable and preferably rising dividend. DSM proposes to increase the total dividend on ordinary shares by €0.10 to €2.50 per ordinary share for 2021.

This will be proposed to the Annual General Meeting of Shareholders to be held on 10 May 2022. An interim dividend of €0.80 per ordinary share having been paid in August 2021, the final dividend would then amount to €1.70 per ordinary share.

The dividend will be payable in cash or in the form of ordinary shares at the option of the shareholder, with a maximum of 40% of the dividend amount available for stock dividend. If more than 40% of the total dividend is requested by the shareholders to be paid out in shares, those shareholders who have chosen to receive their dividend in shares will receive their stock dividend on a pro-rata basis, the remainder being paid out in cash. Dividend in cash will be paid after deduction of 15% Dutch dividend withholding tax. The ex-dividend date is 12 May 2022.

Dividend per ordinary DSM share in €
2021 dividend is subject to approval by Annual General Meeting of Shareholders



Dividend on Cumulative Preference Shares A

The **Cumulative Preference Shares A** are, in accordance with article 32, section 3, of the Articles of Association, entitled to a dividend for the financial year 2021 which is equivalent to the dividend yield of the ordinary shares over 2021, which will be — if the dividend proposal on ordinary shares will be adopted by the AGM on 10 May 2022 — about 1.52%. This percentage may be increased or decreased by a mark-up or discount of no more than one hundred (100) basis points, to be determined by the Managing Board in consultation with the Supervisory Board.

The Managing Board in consultation with the Supervisory Board has decided to use the maximum mark-up within their discretionary option (100 basis points) and to set the **dividend percentage** on the Cumulative Preference Shares A at 2.52% (2020: 2.94%).

As the basis for the computation of the dividend on the Cumulative Preference Shares A amounts to €5.2942 per share, the **total dividend** for 2021 amounts to €**0.1334 per share**.

An **interim dividend** of €0.05 per Cumulative Preference Share A having been paid in August 2021, the final dividend thus amounts to €0.0834 per Cumulative Preference Share A.

Bearer shares

On 27 April 2006, all **bearer shares** (‘*aandelen aan toonder*’) in DSM’s issued share capital were converted into **registered shares** (‘*aandelen op naam*’) (pursuant to an amendment of the Articles of Association made at the time). In order to exercise the rights vested in the shares, holders of former bearer shares were required to hand in their bearer share certificates (‘*aandeelbewijzen*’) to DSM.

Pursuant to an amendment of Section 2:82 of the Dutch Civil Code (DCC) in 2019, DSM shareholders who still have not handed in their **bearer share certificates** will lose any entitlement to exchange their bearer share certificates for a replacement share as per 2 January 2026.

In accordance with Section 2:391(2) DCC, DSM hereby gives notice of the following:

(i) A shareholder may not exercise the rights vested in a share until after he/she has handed in his/her bearer share certificates to DSM.

(ii) A bearer share certificate which was not handed in to DSM on or before 31 December 2020 has become void and the share represented by the bearer share certificate has been acquired by DSM for no consideration, irrespective of whether DSM's Articles of Association allow the acquisition of its own shares. Section 2:98a (3) DCC does not apply to this acquisition. DSM shall be registered as the shareholder thereof in DSM’s shareholders register. DSM shall hold the shares until the end of the period mentioned in (iii) below.

(iii) A shareholder who hands in a bearer share certificate to DSM no later than five years after the acquisition mentioned in (ii) above, therefore no later than 1 January 2026, is entitled to receive from DSM a replacement registered share provided that this share is registered in DSM’s shareholders register in the name of a central securities depository, and DSM will instruct the shareholder’s bank to credit the share in a securities account in the name of holder of the bearer share certificate.

The procedure described above follows from Section 2:82(3) up to and including (9) DCC, whose provisions apply.

Sustainability statements

Stakeholder engagement

In the following pages, we present some examples of how we engage with external stakeholders, including the partners in our value chain. For an overview of all our stakeholders, see Stakeholders. For information on how we engage with our employees, see People. For historical information on our sustainability performance, please see the five-year summary – sustainability tables and the company website.

Customers

Our customers are the key stakeholders for our business, and we engage with them closely through our Business Groups. The ongoing COVID-19 pandemic and external developments has challenged the traditional approaches for customer interaction. Despite this, we aspire to continually strengthen our relationship and intimacy with them.

Measuring customer loyalty with our Net Promotor Score

Customer loyalty and satisfaction starts with understanding our customers, their needs and their journey when interacting with us. Against the backdrop of the disruptions caused by COVID-19, we continued to invest in strengthening our customer relationships. We measure customer loyalty and satisfaction through the Net Promoter Score (NPS) methodology (both relational and transactional) — the voice of the customer. This enables us to continuously improve our product and service offering toward our customers.

In 2021, our NPS improved to 51 (2020: 50, 2016: 38) as a result of the strong collaboration and strengthened relationships throughout the year. This is the sixth consecutive year-on-year improvement where our sales, service and business teams have been able to manage the close customer relation so important for the success of our business.

For information on how we engage with our customers through our business, see Nutrition, Materials and Innovation.

Suppliers

The DSM Sustainable Procurement Program

As sustainability is a fundamental and integral part of our way of doing business, we must ensure that, working jointly with our suppliers, we deliver on our promise to reduce our environmental footprint and improve lives for people today and generations to come through our activities, products, solutions and innovations.

Our Sustainable Procurement Program comprises the following elements:

- Supplier development and evaluation program, in which we focus on assessing, auditing and further improving our suppliers' sustainability performance by actively developing and following up on corrective actions
- Our Scope 2 program for reducing greenhouse gas emissions from purchased electricity
- Our Scope 3 program for reducing greenhouse gas emissions throughout our value chain, where we are working together with our suppliers on our collective carbon footprint and emissions
- A sustainable decarbonization of heat via the procurement of renewable fuels

Supplier Sustainability Evaluation

	2021	2020
Spend coverage SCoC	95%	93%
EcoVadis assessments	411	351
Together for Sustainability audits	8	14
Spend on local suppliers[1]	62%	-

1 For continuing operations only. Local supplier is defined where the supplier country is equal to the purchasing location's country.

The **business principles most relevant for the supply chain** are brought together in the **Supplier Code of Conduct** (SCoC) and structured along the three sustainability dimensions of People, Planet and Profit. The Supplier Code of Conduct (available on the DSM Supplier Website in eight languages) forms the basis on how we choose to do business and interact with our suppliers.

In 2021, we met our target level of 95% of our supplier spend covered by the SCoC. Through Together for Sustainability assessments and audits, we check that **suppliers act in compliance with our norms and values.** When suppliers cannot meet our expectations, we will work with them to define and execute an **improvement plan**.

Assessing sustainability in our supply chain

At DSM, we understand that connecting across complex value chains is not easy and requires **strong collaboration**. That is why we are a member of the Together for Sustainability (TfS) initiative. TfS aims to develop and implement a global **supplier engagement program** that assesses and **improves sustainability practices** in both environmental and social terms. This network grew further in 2021 by new members and celebrated its ten-year anniversary in 2021. We are active in several workstreams within TfS. More information about this program can be found on our company website.

In 2021, we continued our focus on **driving improvement to support sustainability development in the value chain**. Although value chains are complex and continued to be affected by COVID-19, sustainability development was kept in focus. We assessed 411 suppliers in 2021 through TfS, of which 373 were re-assessments, and. 65% of our re-assessed suppliers received an **improved sustainability score**, compared to 60% last year, which indicates that our suppliers are further engaging in sustainability.

On-site audits were heavily impacted by contact and travel restrictions in various regions on the globe throughout the year because of COVID-19. We performed fewer face-to-face audits in the more traditional manner while taking care of COVID-19 precautions. In 2020, we had piloted the **first virtual audits** through the **TfS platform**. The virtual audit used technology to conduct the audit, assessment, inspection, and oversight from a remote location. In evaluation, the virtual audit was perceived as **comparable to a physical audit**. However, the virtual aspect lacked **typical physical experiences** such as the perception of odor, or direct human interactions with the company. We consider that this type of audit is **most suitable for follow-up audits** and we do not consider this type of audit to be suitable for all suppliers. Technical capabilities as well as **reliable, fast internet connections** are essential to execute a successful virtual audit. Through TfS, we are exploring the further use of virtual audits besides the regular audits.

Capabilities to enhance and drive sustainability

Close collaboration with our strategic supply partners is key to bring our sustainability to the next level. **Building capabilities** and **driving sustainability** is closely connected to having subject-matter trainings available both for suppliers and our employees. We are actively contributing through assessments and audits, while participating in TfS workstreams to shape future supplier demands. Lastly, **integrating sustainability** as part of day-to-day business is expedited by having accessibility to all relevant data while on the job.

We played an active role in several workstreams in the TfS-initiative, such as **governance & partnerships**. Here, new memberships and the sharing of best practice across TfS are addressed. Besides this, we shared our view and experience regarding **scope 3 program development** in the newly inaugurated workstream on scope 3.

We actively support and utilize **training opportunities** given by the TfS initiative for our supply base as well as for our sourcing community. Three supplier training webinars designed to fit the time zones of North America, Latin America and Europe were shared in local languages. The aim of the webinars was to provide a **deeper understanding of the TfS program**, equip our suppliers with the understanding of how to utilize the **Corrective Action Plan Tool** and the action points following an assessment. The webinars attracted a high level of participation.

Further internal trainings in sustainability continued to be provided to our sourcing community. Three trainings were offered on the use of **practical tools for integrating sustainabilit**y into the daily work of sourcing professionals, specifically on **sustainable procurement, assessments and audits**, and **scope 3**. These trainings are mandatory to relevant sourcing roles and aim to equip our colleagues with the necessary understanding to engage in relevant sustainability conversations with our suppliers.

To improve steering of sustainability in our supply chain, we launched a first prototype of a **fully automated internal dashboard** combining all available assessments and audits per strategic supplier. This increased transparency permits the tracking of **supplier sustainability status and developments**. The improved data accessibility will enable better incorporation of sustainability considerations into sourcing strategies and supplier selection.

Since 2021, the concept of **sustainable tender** has been included in all strategic sourcing projects within **global logistics and packaging**. With sustainable tender in the supplier selection process, we will be able to identify sustainable solutions from our suppliers, differentiate suppliers in terms of sustainable behavior, and influence the supply market.

Stakeholder engagement

In addition to working with our suppliers, we also work with external partners to enhance **collaboration in the supply chain**. These partners include Roundtable for Sustainable Palm Oil (RSPO), Friends of the Sea, and the Marine Stewardship Council.

Taking steps toward sustainable palm oil derivatives

We are actively taking steps to reduce deforestation by sourcing ingredients such as palm oil derivatives in a more sustainable way. For example, **we are a member of the RSPO** — a not-for-profit, multi-stakeholder organization aimed at making sustainable palm oil the market norm. We aim to have RSPO certification for all of our major production sites that use palm oil derivatives. Through our company, DSM Nutritional Products, we are a member of RSPO. DSM Food Specialties and DSM Nutritional Products met their objective to use 100% RSPO certified sustainable palm oil products using RSPO 'Mass Balance', 'Segregated' and 'Book and Claim' supply chain models by 2021. For more information on our use of palm oil, see the company website.

Responsibly sourced marine resources

Protecting our marine environment is important to us as a company. We are committed to the responsible and sustainable use of natural marine resources. We have '**Friends of the Sea'** certification for all our fish oil purchases. This helps ensure that the fisheries involved in providing fish oil to produce our omega-3 product range are sustainable. Furthermore, we had already successfully attained 100% **Marine Stewardship Council** (MSC) certification for all our tuna oil suppliers in 2020. We are proud to partner with the MSC, the global gold standard for certification and eco-labeling of seafood, to offer MEG-3® tuna DHA oils and powders that are MSC Chain of Custody (CoC) certified. This certification guarantees 'ocean to purchase' traceability throughout the entire supply chain, providing assurance that our tuna DHA products can be easily traced to certified fisheries.

The BICEPS network

Our Global Logistics and Packaging team has connected with other shippers and industry bodies to advocate **sustainability in the international transport market**. Together, we formed the BICEPS Network, a network with the aim to reduce the CO_2 emissions of the carriers. This led to an **internationally verified rating system** that provides an industry-recognized sustainability ranking of shipping lines and enables us to reward sustainable behavior.

Supplier projects

As part of our drive to foster better business through our supplier projects, our Procurement organization engages in **proactive dialogue with suppliers** to move the business agenda forward. In this context, DSM Sourcing pursues initiatives to create **joint value,** awareness and engagement regarding **innovation, greenhouse gas emissions** reduction and **renewable electricity** projects.

Supplier engagement is important to us. During 2021, in-depth discussions took place as part of our scope 3 supplier engagement program, CO2REDUCE, which addressed well over 50 suppliers across all businesses. More information on this program can be found in Scope 3 emissions.

In addition, we presented our sustainability story during company-wide events of some of our **strategic suppliers**, such as during the launch of a supplier's sustainability program. These presentations demonstrated to a wider company audience the **necessity and pull for sustainability** from a customer's perspective. We received positive feedback, helping to drive further engagement with these suppliers.

Every year, the DSM Procurement community presents awards to teams who have developed successful projects in various categories, with sustainability as a key selection criterion. The case outcomes should positively contribute to the commercial results of a DSM business unit or service unit and be exemplary in adjacent fields such as sustainability, digitization, or innovation. In 2021, more than 45 entries participated in the award. The winner was the Global steam trap monitoring initiative, which realized energy savings and CO_2 reductions through online and wireless monitoring of the steam traps in our facilities. Our key supplier, Emerson Automation Solutions, applied the results by means of their developed technology and capabilities for global roll-out.

In 2021, hybrid working and the ongoing COVID-19 pandemic led to a permanent shift toward working from home. Our employees require ergonomic furniture and IT accessories in their homes to prevent long-term occupational injuries and allow for more efficient and convenient day-to-day work. We designed an effective sourcing strategy based on a sustainable tendering process with clear additional requirements regarding self-service capability, customized support, and digital solutions. The contracted supplier also provided a sustainable solution for our 'old' DSM furniture through refurbishing and re-use. Digital tooling enabled employees to order their tailored home-workplace package online. This program was rolled out in the Netherlands, Switzerland and the United States.

Investors

We value the essential contribution our capital providers make to our success and prosperity, allowing us to pursue a long-term oriented, purpose-led, performance-driven strategy. This should also lead to a continuous increase of the company's valuation for the benefit of its shareholders and provide a low risk profile for our debt holders. We see the focus of our capital providers increasingly moving beyond returns on financial capital and including considerations of environmental, human and social impact in their decisions.

Transparent communication with financial markets

We ensure that accurate financial and relevant non-financial information is communicated to the financial markets in a transparent and simultaneous way. All information is made easily accessible to the public via the company website. Besides the Annual General Meeting of Shareholders, we also reach out to the financial markets through events such as our Investor Days, participation in (virtual) investor conferences and by organizing (virtual) roadshows. We actively seek engagement with financial advisors who cover DSM on behalf of their financial market clients, such as brokers, credit rating agencies, proxy advisors, shareholder representative organizations, and ESG (Environment, Social, Governance) rating agencies.

Feedback from the financial markets is periodically discussed and assessed by the Managing Board and the Supervisory Board. We highly value the insights gained through these engagements.

We engage with our investors and their representatives on topics such as the SDGs, climate change, biodiversity, governance, sustainability in supply chain management, human rights, inclusion and diversity, and responsible taxation.

Updating investors on our strategic progress

During 2021, we continued to update the market on our progress against our strategic targets and sustainability ambitions and the progress of our large sustainability-driven innovation projects.

We focused our reporting on giving full integrated disclosure on financial and non-financial performance at half-year and full year, while limiting first-quarter and third-quarter reporting to a trading update. This reflects the consideration of long-term value drivers which are critical to the success of our company.

Due to COVID-19, the financial markets continued to be impacted by uncertainty and volatility during 2021. We intensified direct virtual contact with our investors in order to keep them all informed about business conditions how we were managing COVID-19, and its effects on our operations.

At our half-year reporting, we made a deeper dive into how we can make farming more sustainable. In September, we presented the re-alignment of our organization as a Health, Nutrition & Bioscience company and outlined how we can make a positive impact on planet, people and livelihoods via our Food System Commitments, which are linked to the UN Sustainable Development Goals.

In 2021, our Investor Relations program was ranked number one in its sector by Institutional Investor Research and received highest recognition for its investor communication, responsiveness to the capital markets, business and market know-how, authority and credibility, virtual roadshow program, virtual investor event and quality of earning calls.

Engaging with the market about purpose and ESG

Purpose and profit go hand in hand at DSM, which has been demonstrated by a continuing strong performance in terms of both financial and non-financial metrics. In 2021, we actively advocated purpose-driven entrepreneurship among our shareholders. We engaged with investors, including pension funds, to discuss their responsibility in long-term value creation for their customers, but also for the society and the environment their participants live in. We actively participated in investor initiatives including the World Business Council for Sustainable Development (WBCSD), Future-Proof Business and the FCLT (Focusing Capital to the Long Term), in their 'Multi-stakeholder in practice' project, encouraging a longer-term focus in business and investment decision-making.

We are committed to staying ahead in sustainability reporting and ensuring we report against new and future requirements of regulating authorities including the EU Sustainable Finance Action Plan, EU Green deal, EU Taxonomy, EU Corporate Sustainability Reporting Directive and Sustainable Finance Disclosure Regulation (SFDR). We emphasize the need to make reporting metrics uniform, comparable and auditable.

We continued our engagement with leading ESG Ratings and Benchmarks advisors to the financial sector, including Sustainalytics, MSCI, Moody's-Vigeo and ISS-ESG.

In 2021, we saw an increased focus in our engagement dialogues on nature and biodiversity, as well as social topics including human rights, inclusion and diversity.

We again saw the number of direct engagements between investors and DSM on ESG topics, including SDG impact, increase in 2021. ESG has become part of the regular agenda of our investor meetings. Being recognized as a leader in sustainability and at the same time showing continued good financial progress, we were frequently invited for in-depth engagement calls and meetings on how to include — and compare — important non-financial parameters in our investor's investment processes.

At the end of 2021, 87% of our shares held by institutional investors were held by signatories of the Principles for Responsible Investment (PRI investors) and 17% of our outstanding shares at institutional investors were in dedicated sustainability funds.

Society

We engage with society at multiple levels — from local community initiatives to collaborations with universities and research institutes. Due to the ongoing effects of the pandemic, many of our regular engagements were postponed, or moved online, such as our annual Earth Day activities. We continue to engage in philanthropic and sponsorship activities to the average yearly amount of approximately €6 million, as well as the in-kind contributions of our employees' hours and expertise.

Supporting personal development and communities in need in Brazil

Our partnership with the Municipal Department of Education of Mairinque offered young people insights into their professional future, and provided relevant skills training. The Gastromotiva partnership provides students with professional training to become entrepreneurs or chefs. We continued to support communities in need through our volunteer programs and donations of food items, hygiene products and other essential items.

Maintaining engagement on malnutrition and schooling in China

For the 14th year, the DSM Bright Experience campaign was held in China to raise funds and increase awareness on eradicating malnutrition and hunger in China. It was held jointly with UN WFP and China Foundation for Poverty Alleviation

(CFPA). Our support of the DSM Hope School in Lintao (Gansu province) continued, with scholarships awarded to 155 students to support their study and home life.

Advocating on nutrition in Japan
In the context of the Tokyo Nutrition for Growth Summit (N4G) 2021, we hosted a number of online events on the importance of nutrition. At the 3rd DSM Japan Sustainability Forum, we hosted an online event titled 'Sustainable Food System, Nutrition and Health – Creating Healthy Planet for Healthy People'. Later in the year, together with the Ajinomoto Group, the effectiveness of school meals for improving children's nutrition was discussed, and what role the private sector, together with regional governments and international organizations, can play in supporting school meal programs.

Addressing vitamin D deficiency in India
The campaign 'Boost your ImmuniD' was launched in India to underline the need for adequate levels of vitamin D. Despite being a sun-rich country, 80% of India's population face vitamin D deficiency. The campaign highlighted the role of vitamin D for good health and immune function.

Supporting safety, health and well-being in the Netherlands
In the province of Limburg (Netherlands), DSM and regional stakeholders launched the regional Food Boost Challenge platform to engage young people on the subject of healthy nutrition and lifestyle choices. After the flooding in the same province, we offered shelter to impacted employees in our headquarters.

Highlighting nutrition and sustainability in Singapore
The inaugural event of the Bright Science & Technology Hub brought our customers, government agencies and food-tech start-ups together to discuss trends and breakthroughs in nutrition, sustainability and technology. Through the DSM SMU-X (Singapore Management University) Sustainability Challenge, students were given the opportunity to explore supply chain and consumer-side challenges in nutrition and sustainability through real-world business challenges.

Addressing food and the future in Switzerland
At a seminar organized by the Dutch Embassy in Basel (Switzerland) on food loss and waste, we looked into how food- and feed-additives can improve the sustainability of the dairy industry. On Zukunftstag ('Future Day'), we opened our Swiss offices to our employees' children, allowing them to see at first hand what we do and what drives us.

Engaging on community and climate in the US
In 2021, we were active in addressing issues concerning child care through editorials and congressional briefings, and championed inclusion & diversity through our leadership roles in the National Diversity Council. We continue to support the Union Country College Foundation Close the Gap initiative, which is being replicated to support other communities. We participated in Congressional Meetings to support climate change mitigation and a price on carbon legislation. Furthermore, we lead numerous business coalitions to support climate change mitigation actions. Through our DSM North America Employee Relief Fund, we also provided financial support to dozens of our colleagues who suffered property damage as a result of climate-induced natural disasters such as hurricanes, floods, blizzards and fires.

Notes to the Sustainability statements

1 Management approach for material topics

In the following sections, we elaborate on the material topics defined in the Materiality matrix and describe how we manage these topics.

Environment

Climate mitigation

This topic addresses reducing energy use and greenhouse gas emissions in our own operations, increasing the share of energy coming from renewable sources and developing solutions to support our customers in reducing carbon footprint across their value chains to enable the transition to a low carbon economy.

Management approach: We manage this topic by improving our own carbon footprint, enabling our customers through innovative solutions and advocating actions toward a low-carbon future. We publicly disclose our impact and strategy via this Report, CDP and others. Through our Food System Commitments, we commit to enable on-farm livestock emissions reductions.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms and networks
Climate mitigation
Review of business

Climate adaptation

This topic addresses preparing for the physical and transition risks and opportunities associated with changing climate by ensuring operational procedures are flexible and resilient.

Management approach: We manage this topic through identifying our exposure to climate risks through our physical and transition risk assessments. The outcome of these assessments is reviewed and validated with our businesses, sites and other relevant functions. We publicly disclose our impact and strategy via this Report, CDP and others.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms and networks
Climate adaptation
Review of business

Waste & circularity

This topic covers reducing waste in our operations and across value chain partners by enabling closed loop solutions with a focus on renewable and bio-based materials.

Management approach: We manage this topic by improving the value extracted from the limited resources that are available, enabling the transition to a circular and bio-based economy through our solutions and advocating a shift away from a linear to a circular and bio-based economy.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms and networks
Waste & circularity
Planet
Review of business

Nature & biodiversity

Nature & biodiversity refers to the protection of natural capital and ecosystems, including the variety and variability of life on earth and addressing issues such as land degradation, nature loss and ocean pollution.

Management approach: Nature & biodiversity is a global issue that is locally relevant, and that potentially has impact on our operational locations. The DSM Responsible Care Plan defines how we monitor and assess the impact of our operations on these locations. We support the ambitions of the Convention on Biological Diversity and we continue to explore the role the Natural Capital Protocol can play in supporting our decision making. Through our Food System Commitments, we commit to reach people with nutritious, delicious, sustainably produced plant-based foods.

Our position paper on Biodiversity can be found on the company website.

For information on this topic, see:
Nature & biodiversity
Biodiversity position paper

Water stewardship

Water is essential to life and all ecosystems. As water is becoming a scarcer resource, both the quality and quantity of available water constitute a global issue that has local consequences that may extend from water scarcity to floods and storms.

Management approach: We are committed to the sustainable use of water. Our approach is defined in the DSM Responsible Care Plan, with the ambition to improve our water withdrawal efficiency in water-stressed areas. Water is not a primary ingredient in our products, and we believe that water risks are local by nature, so we focus on local water risk assessments and thorough follow-up on these. We are a signatory to the UN Global Compact CEO Water Mandate and disclose our water management and strategy via CDP.

For information on this topic, see:
Water stewardship

Social

Food security

This topic is part of the transition to sustainable food systems within planetary boundaries that is needed to secure the future availability of food. It includes developing sustainable solutions that will contribute to enabling to feed and nurture the growing global population.

Management approach: We manage this topic by enabling healthy food systems through our Nutrition businesses, which target health and well-being. We advocate for a change in food systems within planetary boundaries. Through our Food System Commitments, we commit to help close the micronutrient gap of vulnerable people

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy

Collaborative platforms & networks
Review of business

Sustainable agriculture

This topic is part of the transition to sustainable food systems within planetary boundaries that is needed to secure the future availability of food. It covers working closely with farmers to improve the sustainable standards of food production and protect their livelihoods.

Management approach: We manage this topic by enabling healthy food systems through our Nutrition businesses, which target sustainable agriculture. We advocate for a change in food systems within planetary boundaries. Through our Food System Commitments, we commit to enable on-farm livestock emissions reductions and to support the livelihoods of smallholder farmers.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms & networks
Review of business

Healthy diets & nutritious food

This topic is part of the transition to sustainable food systems within planetary boundaries that is needed to secure the future availability of food. It addresses providing solutions that contribute to good nutrition and healthy diets for all. This includes enabling affordable nutrition and ensuring tasty and delicious food is available and low in elements contributing to non-communicable diseases.

Management approach: We manage this topic by enabling healthy food systems through our Nutrition businesses, which target sustainable agriculture. We advocate for a change in food systems within planetary boundaries. Through our Food System Commitments, we commit to supporting the immunity of people and reaching people with nutritious, delicious, sustainably produced plant-based foods.

For information on this topic, see:
Our approach to the Sustainable Development Goals
Strategy
Collaborative platforms & networks
Review of business

Talent attraction & development

This topic refers to the continuous development of employees' skills through training and development programs, and the company's ability to attract and retain talent in order to execute the business strategy.

Management approach: Talent attraction & development fuels the growth of our employees and leaders, which in turn enables our overall growth as an organization. Through our People & Organization strategy, we aim to reset the context for leadership to create an inspiring, empowering and inclusive environment for our people and our business, and to empower our people with the tools and an environment that enables them to take ownership of their performance, development and careers.

For information on this topic, see:
Delivering on our P&O strategy

Occupational health, safety & well-being

Occupational health, safety & well-being addresses the company's ability to create and maintain a safe and healthy workplace environment that is free of injuries, fatalities, and illness (both chronic and acute), and to take care of our employees' well-being at work.

Management approach: The occupational health, safety and well-being of all our employees and contractors is our highest priority. Our approach to safety is defined in the DSM Responsible Care Plan and is spearheaded by our Life Saving Rules. We apply an occupational health model whereby we strive to minimize exposure to potential health risks.

For information on this topic, see:
Safety
Health & well-being

Human rights

This topic encompasses decent working conditions for DSM employees, suppliers and other partners across the value chain. It addresses subjects including freedom of association, non-discrimination, the prohibition of child labor and forced labor, and fair compensation.

Management approach: DSM has installed a cross-functional Human Rights Steering Committee and working group to manage our approach toward human rights, which is defined in our position paper. Our whistleblower policy (DSM Alert) is available for employees and external stakeholders to report potential violations of human rights.

For information on this topic, see:
Human rights
DSM Code of Business Conduct
Suppliers
Human Rights position paper
Whistleblower policy – DSM Alert

Employee inclusion & diversity

This topic revolves around equal opportunities, in particular ensuring that our company culture and hiring and promotion practices embrace the building of an inclusive and diverse workforce that reflects the makeup of local talent pools and its customer base.

Management approach: We focus our activities on increasing the representation of women and the under-represented nationality diversity of our executive population and management pipeline. We have five diversity pillars – Gender, Race, Ethnicity & National Identity, LGBTQ+, Disability and Generations - which are supported by Employee Resource Groups. Our focus areas are in recruitment, development, and inclusion. Employee inclusion & diversity is addressed through our Inclusion & Diversity (I&D) network, led by our I&D Council. Our employees are trained on Respectful behavior to emphasize the importance of inclusiveness and diversity and to prevent inappropriate behavior including sexual harassment.

For information on this topic, see:
Inclusion & Diversity
Delivering on our P&O strategy
DSM Code of Business Conduct

Business & Governance

Sustainable innovation

This topic refers to the company's technology capabilities and research & development investments to develop innovative, sustainable solutions.

Management approach: Our innovation and research & development capabilities support us in achieving our growth targets. Through collaborations and partnerships, we bring new thinking and new solutions into the company. Through our venturing activities, we invest in emerging innovative companies around the world. We aim to maintain innovation sales at a level of around 20%.

For information on this topic, see:
Innovation

Business ethics & transparency

This topic addresses the company's approach to and public disclosure on ethical and fair business conduct, corporate governance and compliance. This includes taxation, privacy, bioethics, fraud, bribery & corruption, and fiduciary responsibilities.

Management approach: We take our responsibilities as a business seriously. Our approach to ethics and transparency is led by the DSM Code of Business Conduct and our Supplier Code of Conduct. Our whistleblower policy (DSM Alert) supports our employees and third parties in expressing their concerns about suspected misbehavior. DSM's tax position is consistent with the normal course of our business operations and reflects the corporate strategy as well as the geographic spread of our activities. It is available through our position paper. We transparently report on our business through this Report and our public statements.

For information on this topic, see:
DSM Code of Business Conduct
Corporate governance and risk management
DSM Alert policy
Taxation position paper

Cybersecurity

Preventing fraud and the unauthorized access to our networks, IT systems and data, while ensuring company and employee data protection.

Management approach: Cybersecurity is managed by Operations & Responsible Care. Awareness on cybersecurity is addressed through the Security e-learning covering our key security behaviors and the Cyber Fraud Awareness e-learning. Global, as well as targeted, phishing tests are regularly carried out to ensure our people stay alert.

For information on this topic, see:
Sustainability Governance Framework
DSM Code of Business Conduct

Digital transformation

Digital transformation refers to the application of digital technologies to all aspects of business and society.

Management approach: Our Data Analytics Center of Excellence and Digital Acceleration Group will support us in the acceleration of digital insights and solutions. Digital solutions also support and strengthen our customer relationships. We monitor and mitigate potential risks relating to digital through Group Risk Management. Our Information Security Office and Privacy Policy guide our approach toward the security of information assets.

For information on this topic, see:
People
Risk management

Product stewardship

Product stewardship manages and minimizes the environmental, safety and health impacts of substances in our products in line with international regulations from raw materials selection, production process, during use, until end-of-life. It is about knowing the substances we use and produce, being able to explain why we use them, taking the appropriate risk control measures, and sharing this information with relevant and interested stakeholders.

Management approach: Our product stewardship statement describes our approach on this topic. We assess our products and report on the process of substances of concern in our sales. We take a risk-based approach to product stewardship and will use alternatives where feasible, and always where required. We also see the opportunities for safer products with fewer or no hazardous properties in the circular economy.

For information on this topic, see:
Product stewardship
Product stewardship on the company website

Consumer behavior & activism

Addressing changes in consumer behavior and awareness by manufacturing products that consider future needs of society and the environment.

Management approach: Consumer behavior & activism can be both a risk and an opportunity to the company. We recognize shifts in business models, industry and end-consumer behavior, and the ability to respond to changes in our emerging risks. We have shifted our innovation approach to be platform based, and have identified four growth themes that align to our future strategic needs and support our growth ambitions. These themes align to major global societal, technological and environmental trends.

For information on this topic, see:
Our focus in innovation
Innovation
Risk management

2 EU Taxonomy

The EU Taxonomy

The 2018 EU action plan on financing sustainable growth sets out an EU strategy for sustainable finance with the aim of redirecting capital flows. In this plan, an EU classification system was established to determine which economic activities qualify as sustainable. This sustainability classification system is generally referred to as the EU Taxonomy and it is part of the EU's overall efforts to reach the objectives of the European Green Deal and make Europe climate-neutral by 2050.

The EU Taxonomy entered into force on 12 July 2020, establishing criteria for environmentally sustainable economic activities related to six environmental objectives. The taxonomy regulation also amended the EU Accounting Directive (2013/34/EU) on non-financial information by expanding the scope of content that needs to be disclosed by large companies in the Management Report. It requires companies to disclose the proportion of their activities that qualify as environmentally sustainable.

The disclosure requirements are set out in a Delegated Act under Article 8(4) of the Taxonomy Regulation (published 6 July 2021). These disclosure requirements will be fully in force for reporting year 2022, and limited disclosures are requested for 2021. For the reporting period 2021, companies shall provide information on the proportion of taxonomy-eligible and taxonomy non-eligible economic activities in their total activities using the KPIs turnover, capital expenditure, and

operational expenditure, as well as qualitative information. Therefore, we have assessed our economic activities for eligibility in relation to the first two environmental objectives per the EU Taxonomy. Furthermore, we assessed if we have information available to provide disclosures on the proportions using the financial KPIs.

The first **Delegated Act with climate objectives** aims to identify those industries that can make the **largest contribution toward a carbon-neutral society**. These include energy, selected manufacturing activities, transport and buildings. As a Health, Nutrition & Bioscience company, we concluded that the **majority of our core economic activities** are not covered by the Climate Delegated Act, and consequently, we are not in the **primary scope of industries** that are relevant to the two climate-related objectives.

The outcome of the below assessment indicates the parts of our **current activities** that are in scope for the first two environmental objectives that relate to **climate mitigation** and **climate adaptation**.

Our eligibility for the first two environmental objectives

Based on the standard table as provided in the EU taxonomy, DSM reports the following for 2021:

(in € million)	NACE-codes	Taxonomy Activity	Turnover[1]	CAPEX	OPEX	Category
A1 Eligible and Aligned	n.a. in 2021	n.a. in 2021	n.a. in 2021	n.a. in 2021	n.a. in 2021	
A2 Eligible	20.16 - Production of Primary Plastics	3.17 Production of Primary Plastics	1,600 (17%)	-[2]	-[2]	Transition
Total	**Eligible Activities**		**1,600 (17%)**	**-[2]**	**-[2]**	
BNon-Eligible	Non-eligible activities		7,604 (83%)	-	-	
A + B Total	**Total economic activities**		**9,204 (100%)**	**1,036[3]**	**-[4]**	

1 Based on continuing operations as reported on the face of the income statement in the financial statements

2 The initial legislative texts only included criteria for 'aligned CAPEX and OPEX'. On 2 February 2022, the Commission published more guidance on eligible CAPEX and OPEX. We will assess the impact in 2022 and re-evaluate our future disclosures.

3 Total CAPEX is determined based on the 2021 additions to property, plant and equipment, intangible assets, and additions to right-of-use assets. See Note 8 and Note 9 in the Consolidated financial statements.

4 We cannot provide total OPEX as defined by the EU taxonomy as this information cannot be made available at the required aggregation level at this stage.

We welcome the implementation of the EU Taxonomy and we have assessed its impact on our company in line with its overall objectives, albeit accepting that parts of the Taxonomy Regulation are subject to interpretation, which may lead to variety in its application. Considering the level of complexity as well as the evolving character of the framework, we expect that Taxonomy reporting will develop over time. We will periodically revalidate our methodology and our reported KPIs based on the evolution of the regulations and forthcoming guidance from, amongst others, the European Commission and the European Securities and Markets Authority (ESMA).

More information on our strategy and sustainability commitments can be found in the sections on Delivering a long-term, purpose-led, positive impact, and the DSM Responsible Care Plan. For more information on our climate risk assessment, our ambitions and actions, including our path to reduce emissions by 2030 please refer to Climate adaptation and Climate-related risks.

3 Taskforce on Climate-related Financial Disclosures (TCFD)

The TCFD recommendations are a set of voluntary, **climate-related financial disclosures** for use by companies to provide information to their stakeholders. We were among the first companies to commit to implementing, as fully as practicable, these recommendations as outlined in the TCFD's implementation path. The recommendations are structured around four elements – **Governance**, **Strategy**, **Risk Management**, and **Metrics and Targets**. This Report includes various disclosures relevant for the TCFD recommendations. To highlight this, for each TCFD theme reference is made to relevant sections.

Governance

Sustainability, including climate-related risks & opportunities, is a direct responsibility of the Managing Board. The Managing Board is supported in this by advice from our external Sustainability Advisory Board and reports on progress to the Supervisory Board, via its Sustainability Committee.

Our approach toward assessing and managing climate-related risks and opportunities is steered by our climate action agenda, containing key actions and deliverables that are owned by members of the Managing Board and Executive Committee. The Responsible Care Plan and our greenhouse gas (GHG) reduction program translate the climate action agenda into concrete operational programs managed by Operations & Responsible Care, Sourcing and business management. All of these are regularly discussed and reviewed during the MB/EC meetings.

Strategy

Climate change creates both risks and opportunities for us, and we expect climate mitigation to have a bigger impact on the company than climate adaptation. At this moment, no material short-term climate risks are identified. Physical and transition risks are considered as emerging risks, while transition risks are expected to materialize later this decade.

We reduce our exposure to transition risks such as carbon pricing and changing legislation through actively reducing GHG emissions from our own operations and in our value chain. Projects to underpin our Science Based Targets and net-zero by 2050 commitment are ongoing.

Our innovations seek to offer solutions to address changes coming from the shift to a low-carbon society, which contribute to the mitigation of transition risks and support us in capturing growth opportunities. For example, food systems face considerable challenges from climate change, while at the same time food production is a major contributor to GHG emissions. With innovations including our methane-reducing ruminant solution Bovaer®, and plant-based alternatives, we offer solutions addressing transition opportunities and create value for people, planet and our business.

The impact of physical risks on our top 30 sites was assessed and we concluded that water scarcity is the most material risk which needs to be actively monitored and managed. All sites with an increased water risk profile were already in scope of our water stewardship program. To determine the impact of physical risks on upstream and downstream activities, further assessments are planned.

Risk Management

We are implementing an approach using scenario analysis to better understand the risks and opportunities related to climate change.

Physical risks were assessed for our sites that could lead to material financial impact in case of a prolonged shutdown. Risks were assessed for five hazards using three time horizons and three scenarios. Our understanding of our risk exposure was improved by means of a desk study, supported by an external consultant. The study took into account local circumstances and existing mitigations.

For the transition risk assessments, scenarios were created using external data sources and aligned with the scenarios used for the physical risk assessments. Two pilots were completed, and we will continue to conduct further transition risk assessments while updating and expanding the scenarios in use.

The emerging climate-related risks, which were identified through climate risk assessments or via other means, are managed as part of our regular risk management processes.

Targets and Metrics

Our long-term goal is to reach net-zero GHG emissions across our value chains by 2050. To set us on this path, we work with Science Based Targets (SBT), which are our key environmental targets in the Responsible Care Plan. Our SBT are supported by supplementary targets and programs. Our SBT consist of an absolute reduction of 50% on scope 1 + 2 emissions and a scope 3 intensity reduction of 28%, both by 2030 and versus our 2016 baseline. Furthermore, we also report on related metrics such as Brighter Living Solutions, avoided emissions, climate adaptation efforts, and water stewardship.

We apply a carbon price of €100/t CO_2eq in our large investment decisions and in the Profit & Loss statements of the Business Groups for internal management reporting. We require all business growth projects to be carbon neutral, or else compensated for in the same business.

Climate-related metrics form part of the Long-Term Incentives of the Managing Board and executives.

4 SASB and WEF IBC mapping

We map our disclosures to other standards and frameworks to support our stakeholders who are using these. You can find how our disclosures map to the **Sustainability Accounting Standards Board**'s Chemicals Standard and the **WEF IBC** Stakeholder Capitalism metrics and disclosures below. SASB disclosures that are considered 'not material' have been omitted from the table.

Topic	Reference	Location and WEF IBC notes
Governing purpose	WEF IBC: Setting Purpose	Purpose
Quality of governing body	WEF IBC: Governance Body Composition	Governance framework
Stakeholder engagement	WEF IBC: Material issues impacting stakeholders	Materiality Management approach for material topics
Ethical behavior	WEF IBC: Anti-Corruption	Code of Business Conduct
	WEF IBC: Protected ethics advice and reporting mechanisms	Code of Business Conduct
Risk and opportunity oversight	WEF IBC: Integrating risk and opportunity into business process	Risk management Nutrition Materials Innovation
Climate change	WEF IBC: Greenhouse Gas (GHG) emissions SASB: RT-CH-110a.1 SASB: RT-CH-110a.2	Scope 1 + 2 GHG emissions Scope 3 GHG emissions
	WEF IBC: TCFD Implementation	Taskforce for Climate-related Financial Disclosures (TCFD)
Nature loss	WEF IBC: Land use and ecological sensitivity	Nature & biodiversity – only % of sites in or adjacent to protected sites is reported. IUCN Red List species is currently unknown.
Freshwater availability	WEF IBC: Water consumption and withdrawal in water-stressed areas SASB: RT-CH-140a.1 SASB: RT-CH-140a.3	Water stewardship – water stress is only measured for 'non-OTC' water withdrawal.
Air quality	SASB: RT-CH-120a.1	Other emissions to air
Energy management	SASB: RT-CH-130a.1	Energy transition
Waste management	SASB: RT-CH-150a.1	Waste

Topic	Reference	Location and WEF IBC notes
Safety & environmental stewardship of chemicals	SASB: RT-CH-410b.1 SASB: RT-CH-410b.2	Product stewardship Product stewardship on the company website
Genetically modified organisms	SASB: RT-CH-410c.1	Position paper on Industrial biotechnology on the company website
Dignity and equality	WEF IBC: Diversity and inclusion (%)	Inclusion & diversity
	WEF IBC: Pay equality (%)	Human rights Position paper on fair remuneration on the company website Gender pay gap is reported at company level. Additional analysis and validation is ongoing.
	WEF IBC: Wage level (%)	Human rights Position paper on fair remuneration on the company website DSM focuses on living wage instead of minimum wage.
	WEF IBC: Risk for incidents of child, forced, or compulsory labor	DSM figures: five-year summary – People We have found no instances of child labor within DSM, and child and forced labor are part of the Code of Business Conduct. Risk assessment is in progress for the Supply Chain. It is included in the Supplier Code of Conduct.
Health & well-being	WEF IBC: Health and safety (%) SASB: RT-CH-320a.1 SASB: RT-CH-320a.2	Safety Health & well-being We do not report on absenteeism.
Skills for the future	WEF IBC: Training provided (#, $)	Inclusion & diversity We report on employee level only, as we do not consider it material to our management approach on training to break this number down.
Safety incidents and response	SASB: RT-CH-540a.1 SASB: RT-CH-540a.2	Safety, health & well-being
Employment and wealth generation	WEF IBC: Absolute number and rate of employment	DSM figures: five-year summary – People We do not provide a breakdown using multiple angles as we do not consider it material to do so.
	WEF IBC: Economic Contribution	Taxation position paper on the company website

Topic	Reference	Location and WEF IBC notes
		We do not report on the financial contributions received from governments.
	WEF IBC: Financial Investment Contribution	Strategy at a glance Key business figures at a glance Information on the DSM share
Innovation in better products and services	WEF IBC: Total R&D Expenses ($)	Innovation
Community and social vitality	WEF IBC: Total tax paid	Taxation position paper on the company website

Consolidated financial statements

Summary of significant accounting policies

Basis of preparation
DSM's consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and the provisions of section 362-8 of Book 2 of the Dutch Civil Code. The accounting policies applied by DSM comply with IFRS and the pronouncements of the International Financial Reporting Interpretation Committee (IFRIC) effective at 31 December 2021.

The impact of the IBOR reform (phase 1, effective as of 2020, and phase 2, effective as of 2021) on the operations and results of DSM is not material. Furthermore, other new or amended standards that are effective from 1 January 2021 do not have a material effect on DSM's consolidated financial statements. In addition, new or amended standards effective after 1 January 2022 were neither adopted early, nor expected to have significant impact.

Consolidation including joint arrangements
The consolidated financial statements comprise the financial statements of Royal DSM and its subsidiaries (together 'DSM' or 'group'). As a parent company, DSM is exposed, or has a right, to the variable returns from its involvement with its subsidiaries and has the ability to affect the returns through its power over the subsidiary. The financial data of subsidiaries are fully consolidated. Non-controlling interests in the group's equity and profit and loss are stated separately. Subsidiaries are consolidated from the acquisition date until the date on which DSM ceases to have control. From the acquisition date onwards, all intra-group balances and transactions and unrealized profits or losses from intra-group transactions are eliminated, with one exception: unrealized losses are not eliminated if there is evidence of an impairment of the asset transferred. In such cases, an impairment of the asset is recognized.

A joint arrangement is an entity in which DSM holds an interest and which is jointly controlled by DSM and one or more other venturers under a contractual arrangement. A joint arrangement can either be a joint venture where DSM and the other partner(s) have rights to the net assets of the arrangement, or a joint operation where DSM and the partner(s) have rights to the assets, and obligations for the liabilities of the arrangement. For joint ventures, the investment in the net assets is recognized and accounted for in accordance with the equity method. For a joint operation, assets, liabilities, revenues and expenses are recognized in the financial statements of DSM in accordance with the contractual entitlement or obligations of DSM.

Business combinations
Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, including liabilities incurred, measured at acquisition date fair value, and the amount of any non-controlling interest in the acquiree. Acquisition costs incurred are expensed.

As of the acquisition date, identifiable assets acquired, liabilities assumed and any non-controlling interest in the acquiree are recognized separately from goodwill. Identifiable assets acquired and the liabilities assumed are measured at acquisition date fair value. For each business combination, DSM elects whether it measures the non-controlling interest in the acquiree at fair value or at the proportionate share of the acquiree's identifiable net assets. Any contingent consideration payable is measured at fair value at the acquisition date.

For business combinations with the acquisition date in the prior reporting period, comparative information is revised in case adjustments are made during the measurement period to the provisional amounts, determined as part of the purchase price allocation (PPA), based on information available at the acquisition date.

Segmentation
Segment information is presented in respect of the group's reportable operating segments, about which separate financial information is available that is regularly evaluated by the chief operating decision maker. DSM has determined that Nutrition, Materials and the Innovation Center represent reportable segments in addition to Corporate Activities. The

Managing Board decides how to allocate resources and assesses the performance of the clusters. Cluster performance is reported and reviewed down to the level of Adjusted EBITDA. The clusters are organized in accordance with the type of products produced and the nature of the markets served. The same accounting policies that are applied for the consolidated financial statements of DSM are also applied for the operating segments. Prices for transactions between segments are determined on an arm's length basis. Segment results, assets and liabilities include items directly attributable to a segment as well as those that can reasonably and consistently be allocated. Selected information on a country and regional basis is provided in addition to the information about operating segments.

Foreign currency translation

The presentation currency of the group is the euro.

Each entity of the group records transactions and balance sheet items in its functional currency. Transactions denominated in a currency other than the functional currency are recorded at the spot exchange rates prevailing at the date of the transactions. Monetary assets and liabilities denominated in a currency other than the functional currency of the entity are translated at the closing rates. Exchange differences resulting from the settlement of these transactions and from the translation of monetary items are recognized in the income statement.

Non-monetary assets that are measured on the basis of historical costs denominated in a currency other than the functional currency continue to be translated against the rate at initial recognition and will not result in exchange differences.

On consolidation, the balance sheets of subsidiaries that do not have the euro as their functional currency are translated into euros at the closing rate. The income statements of these entities are translated into euros at the average rates for the relevant period. Goodwill paid on acquisition is recorded in the functional currency of the acquired entity. Exchange differences arising from the translation of the net investment in entities with a functional currency other than the euro are recorded in Other comprehensive income. The same applies to exchange differences arising from borrowings and other financial instruments insofar as those instruments hedge the currency risk related to the net investment. On disposal of an entity with a functional currency other than the euro, the cumulative exchange differences relating to the translation of the net investment are recognized in profit or loss.

Distinction between current and non-current

An asset (liability) is classified as current when it is expected to be realized (settled) within 12 months after the balance sheet date.

Offsetting

Financial assets and financial liabilities are offset and the net amount is presented in the balance sheet when DSM has a legal right to offset the amounts and intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

Intangible assets

Goodwill represents the excess of the cost of an acquisition over DSM's share in the net fair value of the identifiable assets and liabilities of an acquired subsidiary, joint venture or associate. Goodwill paid on acquisition of subsidiaries is included in intangible assets. Goodwill paid on acquisition of joint ventures or associates is included in the carrying amount of these entities. Goodwill recognized as an intangible asset is not amortized but tested for impairment annually, and when there are indications that the carrying amount may exceed the recoverable amount. A gain or loss on the disposal of an entity includes the carrying amount of goodwill relating to the entity sold.

Intangible assets acquired in a business combination are recognized at fair value on the date of acquisition and subsequently amortized over their expected useful lives, which vary from 4 to 20 years.

Separately acquired licenses, patents, drawing rights and application software are carried at historical cost less straight-line amortization and less any impairment losses. The expected useful lives vary from 4 to 15 years. Costs of software maintenance are expensed when incurred. Capital expenditure that is directly related to the development of application software is recognized as an intangible asset and amortized over its estimated useful life (5 to 8 years).

Research costs are expensed when incurred. Development expenditure is capitalized if the recognition criteria are met and if it is demonstrated that it is technically feasible to complete the asset; that the entity intends to complete the asset; that the entity is able to sell the asset; that the asset is capable of generating future economic benefits; that adequate resources are available to complete the asset; and that the expenditure attributable to the asset can be reliably measured. Development expenditure is amortized over the asset's useful life. Development projects under construction are included under 'Development projects'.

Property, plant and equipment

Property, plant and equipment are measured at cost less depreciation calculated on a straight-line basis and less any impairment losses. Interest during construction is capitalized when it meets the criteria of a qualifying asset. Expenditures relating to major scheduled turnarounds are capitalized and depreciated over the period up to the next turnaround.

Property, plant and equipment are systematically depreciated over their estimated useful lives. The estimated remaining lives of assets are reviewed every year, taking account of commercial and technological obsolescence as well as normal wear and tear. The initially assumed expected useful lives are in principle as follows: for buildings 10–50 years; for plant and machinery 5–15 years; for other equipment 4–10 years. Land is not depreciated.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use or the sale of the asset. Any gain or loss arising on derecognition of the asset is recorded in profit or loss.

Leases

DSM recognizes a lease liability and a corresponding right-of-use asset at the commencement date of a lease. The lease liability is initially measured at the present value of the remaining lease payments that are not paid at the commencement date. In general, DSM splits the contractual consideration into a lease and a non-lease component based on their relative stand-alone prices. For vehicle leases, however, DSM applies the practical expedient not to make this split but rather accounts for the fixed consideration as a single lease component. If available, DSM applies the implicit interest rate in the contract to discount the remaining lease payments; only else, DSM uses the applicable incremental borrowing rate as the discount rate. In determining the incremental borrowing rate, DSM applies the practical expedient to use a single discount rate to portfolios of leases with reasonably similar characteristics. Over time, the lease liability is increased by the interest expense related to the unwinding of the lease liability and decreased by the lease payments made. The lease liability is remeasured when DSM reassesses or modifies the contractual terms and conditions, including indexation.

The corresponding right-of-use assets are measured at cost less any depreciation on a straight-line basis over the expected lease term, less any impairment losses, and adjusted for remeasurements of the lease liability. In line with the initially assumed expected useful life of the corresponding asset class within Property, plant and equipment, the minimum expected lease term for building leases is in principle 10 years. However, the contractual terms or specific circumstances could require applying the shorter non-cancellable period in determining the expected lease term. For vehicle leases, the expected lease term is set equal to the contractual term (4–5 years).

Payments related to short-term leases (leases with a term shorter than 12 months) are recognized on a straight-line basis in profit or loss.

Impairment of non-financial assets

When there are indications that the carrying amount of a non-financial asset (an intangible asset or an item of property, plant and equipment) may exceed the estimated recoverable amount (the higher of its value in use and fair value less costs to sell), the possible existence of an impairment loss is investigated. If an asset does not generate largely independent cash flows, the recoverable amount is determined for the cash generating unit (CGU) to which the asset belongs. In assessing the value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market interest rates and the risks specific to the asset.

When the recoverable amount of a non-financial asset is less than its carrying amount, the carrying amount is impaired to its recoverable amount and an impairment charge is recognized in profit or loss. An impairment loss is reversed when there has been a change in estimate that is relevant for the determination of the asset's recoverable amount since the last impairment loss was recognized. Impairment losses for goodwill are never reversed.

Associates and joint ventures

An associate is an entity over which DSM has significant influence but no control or joint control, usually evidenced by a shareholding that entitles DSM to between 20% and 50% of the voting rights. A joint venture is an entity over which DSM has joint control and is entitled to its share of the net assets and liabilities. Investments in associates and joint ventures are accounted for by the equity method, which involves recognition in the income statement of DSM's share of the associate's or joint venture's profit or loss for the year determined in accordance with the accounting policies of DSM. Any other results at DSM in relation to associated companies are recognized under Other results related to associates and joint ventures. DSM's interest in an associate or joint venture is carried in the balance sheet at its share in the net assets of the associate or joint venture together with goodwill paid on acquisition, less any impairment loss.

When DSM's share in the loss of an associate or joint venture exceeds the carrying amount of that entity, the carrying amount is reduced to zero. No further losses are recognized, unless DSM has responsibility for obligations relating to the entity.

Financial instruments

Financial instruments are contractual rights and obligations resulting in an inflow or outflow of financial assets or the issue of equity instruments. They are initially measured at fair value plus any directly attributable transaction costs. Transaction costs for financial instruments assigned to the category 'At fair value through profit and loss' are recognized directly in the income statement. Subsequent measurement is based on the classification of financial instruments defined in IFRS 9.

Non-derivative financial instruments

DSM initially recognizes financial assets and financial liabilities on the date when DSM becomes a party to the contractual provisions of the instrument. DSM derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or when it transfers the rights to receive the contractual cash flows in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. DSM derecognizes a financial liability when its contractual obligations are discharged or canceled, or expire.

Other financial assets

Other financial assets comprise loans to associates and joint ventures, other participating interests and other receivables.

DSM's business model objective for loans is 'held-to-collect contractual cash flows only'. Held to collect loans, other receivables and other deferred items, for which the contractual cash flows consist solely of principal and interest, are measured at amortized cost, using the effective interest method, which generally corresponds to the nominal value, less an adjustment for expected credit loss. Upon disposal of these assets the gain or loss is recognized in profit or loss.

Other receivables, for which the contractual cash flows are not solely principal and interest, are recognized at fair value, with changes in fair value recognized in profit or loss.

Other participating interests comprise equity interests in entities in which DSM has no significant influence; these are accounted for as assets at fair value through profit or loss, or DSM uses the irrevocable election to present the fair value changes in other comprehensive income (Fair value reserve) instead of profit or loss. These fair value changes in OCI will not be recycled through profit and loss upon disposal of the interest. All dividends received will be presented in profit or loss.

Expected credit loss

All financial assets measured at amortized cost include an allowance for expected credit loss as of the date of initial recognition of the asset. Expected credit losses are measured as the present value of the difference between the cash flows due to DSM, and the cash flows that DSM expects to receive. Expected credit losses, are reassessed over time and recognized in the income statement. Loss allowances for trade receivables are always measured at lifetime expected credit loss.

Inventories

Inventories are stated at the lower of cost and net realizable value. The first in, first out (FIFO) method of valuation is used unless the nature of the inventories requires the use of a different cost formula, in which case the weighted average cost method is used. The cost of intermediates and finished goods includes directly attributable costs and related production overhead expenses. Net realizable value is determined as the estimated selling price in the ordinary course of business, less the estimated costs of completion and the estimated costs necessary to make the sale. Products whose manufacturing cost cannot be calculated because of joint cost components are stated at net realizable value after deduction of a margin for selling and distribution efforts.

Current receivables

Current receivables, which include trade receivables, income tax receivables and other current receivables, for which the contractual cash flows are solely principal and interest are initially recognized at fair value plus any directly attributable transaction costs.

Subsequent to initial recognition, they are measured at amortized cost using the effective interest method, which generally corresponds to nominal value, less an adjustment for expected credit loss.

Current investments

Current investments are initially recognized at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, they are measured at amortized cost using the effective interest method. Deposits with banks with a maturity between 3 and 12 months are classified as current investments.

Cash and cash equivalents

Cash and cash equivalents comprise cash at banks and in hand and deposits held at call with banks with a maturity of less than three months at inception. Bank overdrafts are included in current liabilities. Included in cash and cash equivalents are investments in money market funds that do not meet the SPPI (Solely Payments of Principal & Interest) criterion but are held to meet short-term cash demand. Cash and cash equivalents are measured at fair value through profit and loss, or amortized cost.

Non-current assets and disposal groups held for sale

Non-current assets and disposal groups (assets and liabilities relating to an activity that is to be sold) are classified as ‘held for sale’ if their carrying amount is to be recovered principally through a sales transaction rather than through continuing use. The reclassification takes place when the assets are available for immediate sale and the sale is highly probable. These conditions are usually met as from the date on which a letter of intent or agreement to sell is ready for signing. Non-current assets and disposal groups held for sale are measured at the lower of carrying amount and fair value less costs to sell. Non-current assets held for sale are not depreciated or amortized. For transparency, non-current assets and disposal groups that will contribute to joint ventures are reported separately from other assets and liabilities held for sale.

Discontinued operations

Discontinued operations comprise those activities that were disposed of during the period or which were classified as held for sale at the end of the period and represent a separate major line of business or geographical area that can be clearly distinguished for operational and financial reporting purposes.

Royal DSM Shareholders’ equity

DSM’s ordinary shares and Cumulative Preference Shares are classified as Royal DSM Shareholders’ equity. This is the case for the latter, as there is no mandatory redemption, and distributions to the shareholders are at the discretion of DSM. The price paid for repurchased DSM shares (treasury shares) is deducted from Royal DSM Shareholders’ equity until the shares are canceled or reissued. Treasury shares are presented in the treasury share reserve. When treasury shares are sold or reissued, the amount received is recognized as an increase in equity. Dividend to be distributed to holders of Cumulative Preference Shares is recognized as a liability when the Supervisory Board approves the proposal for profit distribution. Dividend to be distributed to holders of ordinary shares is recognized as a liability when the Annual General Meeting of Shareholders approves the profit appropriation.

Provisions

Provisions are recognized when all of the following conditions are met: (1) there is a present legal or constructive obligation as a result of past events, (2) it is probable that a transfer of economic benefits will settle the obligation, and (3) a reliable estimate can be made of the amount of the obligation.

The probable amount required to settle long-term obligations is discounted if the effect of discounting is material. Where discounting is used, the increase in the provision due to the passage of time is recognized as financial expense.

Borrowings

Borrowings are not held for trading and are initially recognized at fair value of the proceeds received, net of transaction costs. Subsequently, borrowings are stated at amortized cost using the effective interest method. Measurement at amortized cost includes any discount or premium on the borrowing. Interest expenses are recorded as financial expense in profit or loss.

If the interest rate risk relating to a long-term borrowing is hedged through a fair value hedge, and the hedge is effective, the carrying amount of the long-term loan is adjusted for changes in fair value of the interest component of the hedged loan.

Other liabilities

Other liabilities are measured at amortized cost, which generally corresponds to the nominal value, or at fair value through profit and loss. The latter is mainly applied to acquisition-related liabilities.

Revenue for contracts with customers

Revenue from contracts with customers is recognized by identifying the contract and its performance obligations as well as determination and allocation of the transaction price to these performance obligations. At DSM, revenue related to the sale of goods is recognized in the income statement when the performance obligation is satisfied. This is at the point in time when transfer of control of the goods passes to the buyer. Revenue recognized is measured at the fair value of the contractual transaction price allocated to the performance obligation that is satisfied.

Income coming from the rendering of services is recognized when the service, i.e., the performance obligation, has been performed. The revenue recognized is measured at the fair value of the contractual transaction price allocated to the performance obligation that is satisfied.

Net sales represent the invoice value less estimated rebates, cash discounts, and indirect taxes.

Income related to the sale or licensing of technologies or technological expertise is recognized in the income statement either at a point in time or over time, depending on when the contractually identified performance obligations are satisfied. Performance obligations related to license income include the transfer of rights and obligations associated with those technologies. License income is reported in Net sales when the income is part of the ordinary and recurring activities of the business and, if this is not the case, it is reported in Other operating income.

Interest income is recognized on a time-proportionate basis using the effective interest method.

Dividend income is recognized when the right to receive payment is established.

Government grants

Government grants are recognized at their fair value if there is reasonable assurance that the grant will be received and all related conditions will be complied with. Cost grants are recognized as income over the periods necessary to match the grant on a systematic basis to the cost that it is intended to compensate. If the grant is an investment grant, its fair value is initially recognized as deferred income in Other non-current liabilities and then released to profit or loss over the expected useful life of the relevant asset.

Share-based compensation

Performance shares and restricted share units are granted free of charge to eligible staff and generally vest after three years on the achievement of previously determined target vesting conditions. The cost of performance share units and restricted share units is measured by reference to the fair value of the DSM shares on the date on which the performance share units and restricted share units were granted and is recognized in profit or loss (Employee benefit costs) during the vesting period, together with a corresponding increase in equity. Vesting conditions other than market conditions are taken into account by adjusting the number of equity instruments, so that the amount recognized during the vesting period in employee benefit costs is based on the number of equity instruments that eventually vest.

The costs of option plans are measured by reference to the fair value of the options on the date on which the options are granted. The fair value is determined using the Black-Scholes model, taking into account market conditions linked to the price of the DSM share. The costs of these options are recognized in profit or loss (Employee benefit costs) during the vesting period, together with a corresponding increase in Equity in the case of equity-settled options or Other non-current liabilities in the case of cash-settled options. No expense is recognized for options that do not ultimately vest, except for options where vesting is conditional upon a market condition.

Emission rights

DSM is subject to legislation encouraging reductions in greenhouse gas emissions and has been awarded emission rights (principally CO_2 emission rights) in a number of jurisdictions. Emission rights are reserved for meeting delivery obligations and are recognized at cost. Revenue is recognized when surplus emission rights are sold to third parties. When actual emissions exceed the emission rights available to DSM, a liability is recognized for the expected additional costs.

Alternative performance measures (APMs)

DSM uses Alternative performance measures to present and discuss DSM's financial results. To arrive at these APMs, adjustments are made for material items of income and expense arising from circumstances such as acquisitions and divestments, restructuring, impairments and other events.

Other APM adjusting events include site closure costs, environmental cleaning, litigation settlements or other non-operational (contractual) arrangements. Other than items related to acquisition and integration costs incurred in the first year from the acquisition date (including non-recurring inventory value adjustments) as well as adjustments due to previously recognized APM adjusting events, the threshold is €10 million.

Income tax

Income tax expense is recognized in the income statement except to the extent that it relates to an item recognized directly in Other comprehensive income or Shareholders' equity.

Current tax is the expected tax payable or receivable on the taxable income for the year, using tax rates enacted at the balance sheet date, and any adjustment to tax payable with respect to previous years. The current tax position also reflects any uncertainty related to income taxes. Current tax assets and liabilities are offset only if certain criteria are met.

Deferred tax assets and liabilities are recognized for the expected tax consequences of temporary differences between the carrying amount of assets and liabilities and their tax base. Deferred tax assets and liabilities are measured at the tax rates that have been enacted or substantially enacted at the balance sheet date, and reflect any uncertainty related to income taxes and are expected to apply when the related deferred tax assets are realized or the deferred tax liabilities are settled. Deferred tax assets, including assets arising from losses carried forward and tax credits, are reassessed over time and recognized to the extent that it is probable that future taxable profits will be available against which the deductible temporary differences and unused tax losses can be utilized. Deferred tax assets and liabilities are stated at nominal value.

Deferred taxes are not provided for the following temporary differences: the initial recognition of goodwill, the initial recognition of assets or liabilities that affect neither accounting nor taxable profit, and differences relating to investments in subsidiaries to the extent that they will probably not reverse in the foreseeable future. Deferred tax assets and deferred tax liabilities are offset and presented net when there is a legally enforceable right to offset, and the assets and liabilities relate to income taxes levied by the same taxation authority.

Derivatives

Derivatives are measured at fair value at initial recognition and subsequent changes are recognized in profit or loss, unless hedge accounting is applied.

Hedging

DSM uses derivatives such as foreign currency forward contracts and interest rate swaps to hedge risks associated with foreign currency and interest rate fluctuations. In addition, DSM may use commodity swap or forward contracts to hedge risks associated with exposure to fluctuations in commodity prices.

Derivatives used as hedge instrument are recognized in the balance sheet at fair value and changes in fair value are recognized in profit or loss unless cash flow hedge accounting or net investment hedge accounting is applied.

Cash flow hedge

Changes in the fair value of derivatives designated and qualifying as cash flow hedges are recognized in Other comprehensive income (Hedging reserve) to the extent that the hedge is effective. Upon recognition of the related asset or liability, the cumulative gain or loss is transferred from the hedging reserve and included in the carrying amount of the hedged item if it is a non-financial asset or liability. Any ineffective portion of the changes of the fair value of the derivative is recognized immediately in profit and loss. If the forecast transaction is no longer expected to occur, the hedge no longer meets the criteria for hedge accounting, the hedging instrument expires or is sold, terminated or exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. If the forecast transaction is no longer expected to occur, then the amount accumulated in equity is reclassified to profit or loss. If the hedged item is a financial asset or liability, the gain or loss is transferred to profit or loss.

Net investment hedge

Changes in the fair value of derivatives designated and qualifying as net investment hedges are recognized in Other comprehensive income (Translation reserve) to the extent that the hedge is effective and the change in fair value is caused by changes in currency exchange rates. Accumulated gains and losses are released from Other comprehensive income and are included in profit or loss when the net investment is disposed of.

Fair value hedge

Changes in the fair value of derivatives designated and qualifying as fair value hedges are immediately recognized in the income statement, together with any changes in the fair value of the hedged assets or liabilities attributable to the hedged risk.

Pensions and other post-employment benefits

For DSM's defined contribution plans, the obligations are limited to the payment of contributions, which are recognized as Employee benefit costs.

For defined benefit plans, the aggregate of the value of the defined benefit obligation and the fair value of plan assets for each plan is recognized as a net defined benefit liability or asset. Defined benefit obligations are determined using the projected unit credit method. Plan assets are recognized at fair value. If the fair value of plan assets exceeds the present value of the defined benefit obligation, a net asset is only recognized to the extent that the asset is available for refunds to the employer or for reductions in future contributions to the plan. Defined benefit pension costs consist of three elements: service costs, net interest, and remeasurements. Service costs are part of Employee benefit costs and consist of current service costs. Past service costs and results of plan settlements are included in Other operating income or expense. Net interest is part of Financial income and expense and is determined on the basis of the value of the net defined benefit asset or liability at the start of the year, and on the interest on high-quality corporate bonds. Remeasurements are actuarial gains and losses, the return (or interest cost) on net plan assets (or liabilities) excluding amounts included in net interest and changes in the effect of the asset ceiling. These remeasurements are recognized in Other comprehensive income as they occur and are not recycled through profit or loss at a later stage.

Consolidated financial statements

Consolidated income statement

x € million	Notes	2021	2020
Continuing operations			
Net sales	5	9,204	8,106
Cost of sales	5	(6,040)	(5,330)
Gross margin		3,164	2,776
Marketing and sales	5	(1,270)	(1,149)
Research and development	5	(323)	(398)
General and administrative	5	(517)	(469)
Other operating income	5	95	102
Other operating expense	5	(128)	(200)
Operating profit		1,021	662
Financial income	6	24	44
Financial expense	6	(130)	(111)
Profit before income tax expense		915	595
Income tax expense	7	(168)	(106)
Share of the profit of associates and joint ventures	10	16	(64)
Other results related to associates and joint ventures	10	326	32
Net profit from continuing operations		1,089	457
Net profit from discontinued operations	3	591	51
Net profit for the year		1,680	508
Of which:			
- Attributable to non-controlling interests	17	4	2
- Dividend on Cumulative Preference Shares	16	6	7
- Available to holders of ordinary shares	16	1,670	499
Earnings per share (EPS) total (in €):	2		
- Net basic EPS		9.68	2.91
- Net diluted EPS		9.63	2.89
Earnings per share (EPS) continuing operations (in €):	2		
- Net basic EPS		6.26	2.64
- Net diluted EPS		6.23	2.62

The accompanying notes are an integral part of these consolidated financial statements.

See Note 2 Alternative performance measures for the reconciliation to Adjusted EBITDA of €1,814 million (2020: €1,534 million) and other adjusted IFRS performance measures.

Consolidated statement of comprehensive income

x € million	Notes	2021	2020
Net profit for the year		1,680	508
Other comprehensive income			
Remeasurements of defined benefit pension plans	24	153	(24)
Fair value changes in Other participating interests	11	46	106
Exchange differences on translation of foreign operations relating to the non-controlling interests	17	8	(4)
Tax related items that will not be reclassified to profit or loss		(20)	(4)
Items that will not be reclassified to profit or loss		187	74
Exchange differences on translation of foreign operations	16		
- Change for the year		478	(451)
- Reclassification adjustment to the income statement		(13)	-
Hedging reserve	16		
- Change for the year		(24)	40
- Reclassification adjustment to the income statement		7	20
Equity accounted investees - share of Other comprehensive income		1	(2)
Tax related items that may subsequently be reclassified to profit or loss		7	(4)
Items that may subsequently be reclassified to profit or loss		456	(397)
Total comprehensive income		2,323	185
Of which:			
- Attributable to non-controlling interests	17	12	(2)
- Available to equity holders of Koninklijke DSM N.V.	16	2,311	187

Consolidated balance sheet at 31 December

x € million	Notes	2021	2020
Assets			
Intangible assets	8	5,310	4,440
Property, plant and equipment	9	3,957	3,775
Deferred tax assets	7	203	240
Prepaid pension costs	24	75	2
Share in associates and joint ventures	10	64	93
Derivatives	23	48	61
Other financial assets	11	227	315
Non-current assets		**9,884**	**8,926**
Inventories	12	2,297	1,879
Trade receivables	13	1,603	1,391
Income tax receivables	13	61	32
Other current receivables	13	32	60
Derivatives	23	30	48
Current investments	14	489	43
Cash and cash equivalents	15	1,561	871
Assets held for sale	3	56	1,096
Current assets		**6,129**	**5,420**
Total		**16,013**	**14,346**
Equity and liabilities			
Shareholders' equity		9,318	7,399
Non-controlling interests	17	79	88
Equity	16	**9,397**	**7,487**
Deferred tax liabilities	7	485	431
Employee benefit liabilities	24	323	414
Provisions	18	96	123
Borrowings	19	2,989	3,484
Derivatives	23	9	1
Other non-current liabilities	20	283	163
Non-current liabilities		**4,185**	**4,616**
Employee benefit liabilities	24	21	42
Provisions	18	68	61
Borrowings	19	104	102
Derivatives	23	40	13
Trade payables	21	1,571	1,218
Income tax payables	21	77	45
Other current liabilities	21	540	508
Liabilities held for sale	3	10	254
Current liabilities		**2,431**	**2,243**
Total		**16,013**	**14,346**

Consolidated statement of changes in equity (Note 16)

x € million	Share capital	Share premium	Treasury shares	Other reserves	Retained earnings	Total	Non-controlling interests	Total Equity
Balance at 1 January 2020	338	489	(905)	96	7,713	7,731	104	7,835
Dividend	-	-	-	-	(423)	(423)	(6)	(429)
Options / performance shares granted	-	-	-	29	-	29	-	29
Options / performance shares vested / canceled	-	-	-	(39)	39	-	-	-
Reissued shares	-	-	238	-	(32)	206	-	206
Acquisition of NCI without a change in control	-	-	-	-	(22)	(22)	(10)	(32)
Acquisition (divestment) of subsidiary with NCI	-	-	-	-	-	-	(1)	(1)
Repurchase of shares	-	-	(309)	-	-	(309)	-	(309)
Transfer	-	-	-	(30)	30	-	-	-
Other	-	-	-	(3)	3	-	3	3
Total comprehensive income	-	-	-	(296)	483	187	(2)	185
Balance at 31 December 2020	338	489	(976)	(243)	7,791	7,399	88	7,487
Dividend	-	-	-	-	(421)	(421)	(3)	(424)
Options / performance shares granted	-	-	-	22	-	22	-	22
Options / performance shares vested / canceled	-	-	-	(24)	24	-	-	-
Cancellation of shares	(10)	(18)	746	-	(718)	-	-	-
Reissued shares	-	-	218	-	(25)	193	-	193
Acquisition of NCI without a change in control	-	-	-	-	(20)	(20)	7	(13)
Acquisition (divestment) of subsidiary with NCI	-	-	-	-	-	-	(24)	(24)
Repurchase of shares	-	-	(165)	-	-	(165)	-	(165)
Transfer	-	-	-	(101)	101	-	-	-
Other	-	-	-	1	(2)	(1)	(1)	(2)
Total comprehensive income	-	-	-	501	1,810	2,311	12	2,323
Balance at 31 December 2021	328	471	(177)	156	8,540	9,318	79	9,397

Consolidated cash flow statement (Note 26)

x € million	2021	2020
Operating activities		
Net profit for the year	1,680	508
Share of the profit of associates and joint ventures (including discontinued operations)[1]	(342)	32
Income tax (including discontinued operations)[1]	245	129
Profit before income tax expense (including discontinued operations)[1]	1,583	669
Financial income and expense (including discontinued operations)[1]	106	67
Operating profit (including discontinued operations)[1]	1,689	736
Depreciation, amortization and impairments (including discontinued operations)[1]	681	740
EBITDA (including discontinued operations)[1]	2,370	1,476
Adjustments for:		
- (Gain) or loss from disposals	(649)	4
- Acquisition / divestment related in EBITDA	22	55
- Change in provisions	(20)	10
- Defined benefit plans	(39)	(13)
Adjustments for EBITDA	(686)	56
Income tax received	23	11
Income tax paid	(156)	(135)
Share-based compensation	22	29
Other	(2)	32
Adjustments for non-EBITDA	(113)	(63)
Operating cash flow before changes in working capital	**1,571**	**1,469**
Changes in operating working capital:		
Inventories	(323)	(36)
Trade receivables	(194)	(4)
Trade payables	334	48
Changes in inventories, trade receivables and trade payables	(183)	8
Changes in non-operating working capital	39	17
Changes in working capital	(144)	25
Cash provided by operating activities	**1,427**	**1,494**

1 The Consolidated cash flow statement includes an analysis of all cash flows in total, therefore including both continuing and discontinued operations. For the amounts related to discontinued operations split by activities and a reconciliation of profit from continuing operations to total, including discontinued operations, see Note 3 Change in the scope of the consolidation.

Consolidated cash flow statement (Note 26) continued

x € million	2021	2020
Cash provided by operating activities	1,427	1,494
Investing activities		
Capital expenditure for:[1]		
- Intangible assets	(137)	(151)
- Property, plant and equipment	(433)	(458)
Payments regarding drawing rights	(7)	(17)
Proceeds from disposal of property, plant and equipment	27	1
Acquisition of subsidiaries and associates	(704)	(1,533)
Disposal of subsidiaries, businesses and associates	1,791	(2)
Additions to fixed-term deposits	(2,070)	(468)
Withdrawal from fixed-term deposits	1,625	1,114
Interest received	5	8
Other financial assets:		
- Capital payments and acquisitions	(43)	(20)
- Dividends received	12	5
- Additions to loans granted	(10)	(9)
- Repayment of loans granted	29	1
- Proceeds from disposals	123	47
Cash from / (used in) investing activities	208	(1,482)
Financing activities		
Contributions from Non-controlling interests	3	3
Acquisition of Non-controlling interests	(13)	(33)
Loans taken up	37	1,123
Repayment of loans	(513)	(268)
Payments of lease liabilities	(54)	(55)
Change in debt to credit institutions	12	(95)
Dividend paid	(266)	(289)
Interest paid	(65)	(54)
Proceeds from reissued treasury shares	34	63
Repurchase of shares	(165)	(309)
Other	6	(3)
Cash (used in) / from financing activities	(984)	83
Change in cash and cash equivalents	651	95
Cash and cash equivalents at 1 January	871	800
Exchange differences relating to cash held	39	(24)
Cash and cash equivalents at 31 December	1,561	871

1 In 2021, there was no customer funding of capital expenditures (in 2020 an amount of €24 million included in capital expenditure was funded by customers); all lease payments are recognized as cash used in financing activities.

Notes to the consolidated financial statements of Royal DSM

1 General information

Unless stated otherwise, all amounts are in € million.

A list of DSM participations has been filed with the Chamber of Commerce (Netherlands) and is available from the company upon request. The list can also be downloaded from the company website.

The preparation of financial statements requires estimates and judgments that affect the reported amounts of assets and liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities at the date of the financial statements.

In addition to DSM's significant accounting policies in the previous section, the policies that management considers to be the most important for the presentation of the financial position and results of DSM's operations are further discussed in the relevant Notes. The same holds for the issues that require management judgments or estimates about matters that are inherently uncertain. Management cautions that future events often vary from forecasts and that estimates routinely require adjustment. Areas of judgment that have the most significant effect on the amounts recognized in the financial statements relate to the categorization of material items in profit or loss as 'APM adjustments', therefore impacting the alternative performance measures, and the identification of cash generating units (CGUs), impacting goodwill impairment testing.

Key assumptions and estimates that need to be made by management relate to the useful lives of non-current assets (Notes 8 and 9), the establishment of provisions for restructuring costs, environmental costs (Note 18) and retirement and other post-employment benefits (Note 24), the recognition and measurement of income taxes (Note 7), the determination of fair values for financial instruments (Note 23) and for share-based compensation (Note 27). The uncertainty concerning the actual outflows of provisions relates to both the amounts and the timing of potential future events.

Furthermore, impairment testing of goodwill, intangible assets and development projects requires judgments by management. Apart from the determination of CGUs, the estimation of future cashflows, growth rates, discount rates and fair values minus costs of disposal require judgement as well (Notes 2, 8, 9 and 10). Significant judgment is also required for the determination of the fair value of assets acquired, and liabilities assumed in business combinations (Note 3) and for the valuation of drawing rights (Note 8). For drawing rights, the most important judgments relate to the estimation of the required maintenance and replacement outlays. Estimates are based on historical quoted market prices, experience and assumptions that are considered reasonable under the circumstances.

For lease contracts under IFRS 16 that include renewal options, determining the lease term involves judgment based on the underlying asset class, past practices and current business outlooks. The assessment of these renewal options affects the lease term of these contracts and, in turn, the recognized lease liabilities and the corresponding right-of-use assets.

Exchange rates
The currency exchange rates that were used in preparing the consolidated financial statements are listed below for the most important currencies.

1 euro =	Exchange rate at balance sheet date		Average exchange rate	
	2021	2020	**2021**	2020
US dollar	1.13	1.23	1.18	1.14
Swiss franc	1.03	1.08	1.08	1.07
Brazilian real	6.31	6.37	6.38	5.88
Chinese renminbi	7.19	8.02	7.63	7.87

Presentation of Consolidated income statement
DSM presents expenses in the Consolidated income statement in accordance with their function. This allows the presentation of gross margin on the face of the income statement, which is a widely used performance measure in the industry. The composition of the costs allocated to the individual functions is explained below.

Cost of sales encompasses all manufacturing costs (including raw materials, employee benefits, and depreciation and amortization) related to goods and services captured in net sales. These are measured at their actual cost based on FIFO, or weighted average cost.

Marketing & Sales relates to the selling and marketing of goods and services, and also includes all costs that are directly related to the sale of goods, but are not originated by the manufacturing of the goods (e.g., outbound freight).

Research & Development consists of:

- Research, which is defined as original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding
- Development, which is defined as the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use that do not meet the accounting requirements for capitalization.

General and administrative relates to the strategic and governance role of the general management of the company as well as the representation of DSM as a whole in the financial, political or business community. It also relates to business support activities of staff departments that are not directly related to the other functional areas.

2 Alternative performance measures

In presenting and discussing DSM's financial position, operating results and net results, management uses certain Alternative performance measures not defined by IFRS. These Alternative performance measures (APMs) should not be viewed in isolation as alternatives to the equivalent IFRS measures and should be used as supplementary information in conjunction with the most directly comparable IFRS measures. Alternative performance measures do not have standardized meaning under IFRS and therefore may not be comparable to similar measures presented by other companies.

To provide clear reporting on the developments of the business, APM adjustments, which represent material items of income or expense, are made. These adjustments impact the EBIT(DA), operating profit, net profit, ROCE, cash provided by operating activities and EPS. A reconciliation of the Alternative performance measures to the most directly comparable IFRS measures can be found in the table Alternative performance measures.

The APM adjustments to net profit, as included in the APMs, can be specified as follows:

	2021	2020
APM Adjustments (continuing operations)		
- Acquisitions/divestments	26	52
- Restructuring	92	103
- Other	(6)	11
- Impairments of PPE and intangible assets	6	101
- Income tax related to adjustments	(30)	(54)
- Adjustments to result from associates and joint ventures	(319)	41
Total APM adjustments (income)/expense	**(231)**	**254**

2021

The APM adjustments in 2021 are listed below:

- Acquisition and divestment costs of €26 million relate mainly to the acquisition and integration of Erber and First Choice Ingredients
- Restructuring costs of €92 million relate mainly to restructuring projects, following the new strategy and the restructuring project at Materials, including the redundancy schemes associated with the dismissal of employees and costs of termination of contracts
- APM adjustments to the result from associates and joint ventures are a profit of €319 million and relate mainly to the book profit of €303 million on the sale of DSM’s share of AOC Aliancys and a profit of €13 million on a higher earn-out relating to previous divestments

2020

The APM adjustments in 2020 are listed below:

- Acquisition and divestment costs of €52 million relate mainly to the acquisition of Glycom, CSK and Erber Group
- Restructuring costs of €103 million relate to restructuring projects (mainly Fit for Growth within Nutrition and Agile to grow within Materials) together with the redundancy schemes associated with the dismissal of employees and costs of termination of contracts
- Impairments of property, plant and equipment (PPE) and intangible assets of €101 million and the other APM adjustment of €11 million relate to an impairment of €56 million of DSM Bio-based Products & Services, owing to an expected subdued market outlook for biofuels which led to insufficient expected future cash flows and an impairment of €56 million relating to DSM Advanced Solar on its solar assets following the sale to Covestro AG
- APM adjustments to the result from associates and joint ventures of €41 million relate mainly to the joint venture POET-DSM, following the decision to mothball the second-generation bio-ethanol plant in Emmetsburg (Iowa, USA), and includes DSM's equity-accounted share in the impairment loss recognized by the joint venture (€74 million), the impairment of the associated intangible assets (€11 million) and the related tax benefit (-€28 million)

Alternative performance measures (continuing operations)

	2021	2020
Operating profit	1,021	662
Depreciation, amortization and impairments	681	706
EBITDA	1,702	1,368
APM adjustments to EBITDA:		
- Acquisitions/divestments	26	52
- Restructuring	92	103
- Other	(6)	11
Total APM adjustments	112	166
Adjusted EBITDA	1,814	1,534
Operating profit	1,021	662
APM adjustments to Operating profit:		
- APM adjustments to EBITDA	112	166
- Impairments of PPE and Intangible assets	6	101
Total APM adjustments	118	267
Adjusted operating profit	1,139	929
Net profit from continuing operations	1,089	457
APM adjustments to:		
- Operating profit	118	267
- Result relating to associates/joint ventures	(319)	41
Income tax related to APM adjustments	(30)	(54)
Total APM adjustments	(231)	254
Adjusted net profit from continuing operations	858	711
Profit attributable to non-controlling interests	(3)	2
Dividend on Cumulative Preference Shares	(6)	(7)
Adjusted net profit from continuing operations available to holders of ordinary shares	849	706

Below table reflects the earnings per share (EPS) related to continuing operations and to total earnings including discontinued operations.

	2021		2020	
	Continuing operations	Total	Continuing operations	Total
Earnings per share (EPS)				
Average number of ordinary shares outstanding (x 1,000)		172,648		171,536
Effect of dilution due to share options (x 1,000)		747		896
Adjusted average number of ordinary shares outstanding (x 1,000)		173,395		172,432
x € million				
Net profit available to holders of ordinary shares	1,080	1,670	452	499
Adjusted net profit available to holders of ordinary shares	849	869	706	760
in €				
Net basic EPS	6.26	9.68	2.64	2.91
Net diluted EPS	6.23	9.63	2.62	2.89
Adjusted net basic EPS	4.92	5.03	4.12	4.43
Adjusted net diluted EPS	4.90	5.01	4.09	4.41

Alternative performance measures

	2021	2,020
Capital employed		
Intangible assets	5,310	4,440
Property, plant and equipment	3,957	3,775
Investment grants / drawing rights	(111)	(112)
Inventories	2,297	1,879
Current receivables	1,696	1,483
Current liabilities	(2,188)	(1,771)
Capital employed at 31 December	**10,961**	**9,694**
Average capital employed		
Capital employed at 1 January	9,694	8,428
Capital employed at 31 March	10,033	8,422
Capital employed at 30 June	10,064	9,024
Capital employed at 30 September	10,414	9,018
Capital employed at 31 December	10,961	9,694
Average capital employed	**10,233**	**8,918**
Adjusted operating profit, continuing operations	1,139	929
ROCE in %, continuing operations	11.1	10.4
Cash provided by operating activities	**1,427**	**1,494**
Cash impact APM adjustments	91	87
Capital expenditure	(570)	(609)
Payments regarding drawing rights	(7)	(17)
Adjusted net operating free cash flow	**941**	**955**
Adjusted net operating free cash flow, continuing operations	**949**	**872**

3 Change in the scope of the consolidation

Acquisitions

In 2021, DSM acquired businesses for a total consideration of €757 million (in 2020: €1,579 million).

Amyris F&F bio-based intermediates business

On 31 March 2021, DSM Nutritional Products acquired the flavor and fragrance (F&F) bio-based intermediates business of Amyris, Inc., which extends DSM's offerings in aroma ingredients with bio-based ingredients for the flavor and fragrance and cosmetics industries, for an upfront consideration of €128 million. Amyris will share in the EBITDA growth over the period 2021–2024 of certain activities (mainly products just launched and under development), which is estimated to result in a total earn-out amount in the range of €85–€128 million.

In accordance with IFRS 3 (Business Combinations), the purchase price was allocated to identifiable assets and liabilities acquired, resulting in a tax-deductible goodwill amount of €29 million and technology intangible assets of €167 million.

The acquisition of the F&F bio-based business contributed €14 million to net sales, -€3 million to operating profit and €5 million to Adjusted EBITDA during a period of nine months in 2021. If the acquisition had occurred on 1 January 2021, additional net sales would have been approximately €19 million, operating profit -€4 million and Adjusted EBITDA €7 million.

Midori USA

On 26 July 2021, DSM Nutritional Products acquired the remaining 63.5% stake in Midori USA, Inc., a biotechnology start-up with a novel precision platform developing breakthrough targeted eubiotics that improve the health and reduce the environmental impact of animals, in a step acquisition for a cash consideration of €52 million. Contributing the fair value of the previously held equity interest to this transaction of €22 million brings the total consideration to €74 million.

In accordance with IFRS 3, the purchase price was allocated to identifiable assets and liabilities acquired, resulting in a non-tax-deductible goodwill amount of €55 million and technology intangible assets of €30 million.

The acquisition of Midori did not contribute to net sales; operating profit amounted to -€1 million and Adjusted EBITDA -€1 million during a period of five months in 2021. If the acquisition had occurred on 1 January 2021, operating profit would have been -€3 million and Adjusted EBITDA -€2 million.

First Choice Ingredients

On 18 October 2021, DSM Food Specialties acquired 100% of the shares of First Choice Ingredients, Inc. in Germantown (Wisconsin, USA), a company developing, producing and marketing clean label dairy-based flavor solutions obtained through fermentative processes, for a cash consideration of €394 million.

In accordance with IFRS 3, the purchase price was provisionally allocated to identifiable assets and liabilities acquired and is based on a draft initial purchase price allocation prepared by an independent valuator. Completion of the independent valuation process is expected in 2022. Main intangibles provisionally recognized are customer relationships for about €100 million and technology for €83 million. The acquisition is expected to result in tax-deductible goodwill to the amount of €190 million.

The acquisition of First Choice Ingredients contributed €13 million to net sales, €1 million to operating profit and €4 million to Adjusted EBITDA during a period of three months in 2021. If the acquisition had occurred on 1 January 2021, additional net sales would have been €64 million, operating profit €7 million and Adjusted EBITDA €19 million.

Vestkorn Milling

On 16 December 2021, DSM Food Specialties acquired a 100% interest in Vestkorn Milling, headquartered in Tau, Norway. Vestkorn Milling is a producer and supplier of plant-based proteins, fibers, starches and cereals used in food and pet food products. The consideration consists of an upfront cash payment of €42 million and an additional earn-out amount between €15 and €43 million, depending on the gross profit of the acquired business over the period 2022–2024, to be paid out in 2025.

In accordance with IFRS 3, the purchase price was provisionally allocated to identifiable assets and liabilities acquired, pending completion of an independent valuation process. The provisional non-tax-deductible goodwill amounts to €71 million.

The acquisition of Vestkorn Milling did not yet contribute to net sales and Adjusted EBITDA in 2021. If the acquisition had occurred on 1 January 2021, additional net sales would have been €27 million, operating profit €1 million and Adjusted EBITDA €2 million.

Finalization PPA Erber

In the reporting year, the Purchase Price Allocation (PPA) related to the Erber acquisition in 2020 was finalized, resulting in an additional allocation of €37 million to intangible assets, mainly for customer relations and technology, a decrease of the goodwill amount by -€51 million and an increase of other net assets by €14 million. The comparative information for the reference year has been adjusted for these measurement period adjustments. As the impact on the profit and loss account is negligible, no comparative information has been adjusted.

Valuation techniques intangible assets

Part of a Purchase Price Allocation is the recognition of intangible assets which are recognized apart from goodwill. The valuation techniques DSM used for measuring the fair value of these intangible assets in 2021 were as follows:

The acquired technology was valued by applying the multi-period excess earnings method (MEEM) considering the present value of net cash flows expected to be generated by the technology and customer relationships; or by applying the relief-from-royalty method, an income approach whereby the value of an asset is estimated by capitalizing the royalties saved as a result of owning the asset; or by applying the replacement cost approach, measuring the cost necessary to (hypothetically) recreate these intangible assets.

The fair values of customer relationships and supply agreements were determined by applying the MEEM or via the replacement cost approach.

Databases were valued applying the relief-from-royalty method.

Summary acquisitions in 2021

The accounting of the acquisitions upon closing impacted DSM's consolidated balance sheet 2021 as shown in below table (measured at the date of acquisition).

	Amyris F&F		Midori USA		First Choice Ingredients (provisional)		Vestkorn Milling (provisional)		Other acquisitions		Total	
	Book value	Fair value	Book value	Fair value	Book value	Fair value	Book value	Fair value	Book value	Fair value	Book value	Fair value
Assets												
Intangible assets	-	167	-	30	-	183	-	-	1	13	1	393
Property, plant and equipment	-	-	-	-	5	5	7	7	-	-	12	12
Other non-current assets	-	-	-	-	-	-	-	-	(2)	(2)	(2)	(2)
Inventories	1	1	-	-	10	12	6	6	-	-	17	19
Receivables	1	1	-	-	9	9	4	4	-	-	14	14
Cash and cash equivalents	-	-	-	-	6	6	1	1	-	-	7	7
Total assets	2	169	-	30	30	215	18	18	(1)	11	49	443
Liabilities												
Non-current liabilities	-	-	-	8	-	-	4	4	-	-	4	12
Current liabilities	-	-	3	3	11	11	11	11	1	1	26	26
Total liabilities	-	-	3	11	11	11	15	15	1	1	30	38
Net assets	2	169	(3)	19	19	204	3	3	(2)	10	19	405
Acquisition price (in cash)		128		52		394		42		8		624
Fair value of associate contributed		-		22		-		-		1		23
Acquisition price (payable)		70		-		-		32		8		110
Consideration		198		74		394		74		17		757
Goodwill		29		55		190		71		7		352
Acquisition costs recognized in APM adjustments		(1)		-		(4)		(1)		(15)		(21)

Divestments

In the reporting year, DSM divested certain businesses in the segments Materials and Innovation for a total consideration of €1,609 million.

Resins & Functional Materials and associated businesses (RFM)

On 1 April 2021, DSM completed the divestment of the Resins & Functional Materials and associated businesses (together 'RFM') to Covestro AG. Prior to this divestment, DSM reclassified the results of these businesses (the 'disposal group') to 'discontinued operations', and reclassified all related assets and liabilities as held for sale on 30 September 2020.

Summary divestments 2021

See below table for the book result of the divestments that took place in 2021.

x € million	RFM business	Other	Total
Assets			
Intangible assets	(439)	-	(439)
Property, plant and equipment	(361)	-	(361)
Other non-current assets	(10)	-	(10)
Inventories	(122)	(4)	(126)
Receivables	(192)	(4)	(196)
Cash and cash equivalents	(76)	-	(76)
Total assets	(1,200)	(8)	(1,208)
Liabilities			
Provisions	(17)	-	(17)
Non-current liabilities	(18)	-	(18)
Current liabilities	(180)	(1)	(181)
Total liabilities	(215)	(1)	(216)
Net assets	(985)	(7)	(992)
Non-controlling interest	(23)	-	(23)
Net assets DSM shareholders	(962)	(7)	(969)
Consideration (net of selling costs, translation differences and net debt)	1,602	7	1,609
Book result 2021	640	-	640
Income tax	(70)	-	(70)
Net book result	570	-	570

Impact on comprehensive income

The impact of the business that has been presented as discontinued operations in the income statement and statement of comprehensive income, is presented in the below tables.

	2021			2020		
	Continuing operations	Discontinued operations	Total	Continuing operations	Discontinued operations	Total
Net sales	9,204	264	**9,468**	8,106	932	9,038
Adjusted EBITDA	1,814	28	**1,842**	1,534	116	1,650
EBITDA	1,702	668	**2,370**	1,368	108	1,476
Total expenses	8,183	(404)	**7,779**	7,444	858	8,302
Adjusted operating profit	1,139	28	**1,167**	929	82	1,011
Operating profit	1,021	668	**1,689**	662	74	736
Financial income and expense	(106)	-	**(106)**	(67)	-	(67)
Profit before income tax expense	**915**	**668**	**1,583**	**595**	**74**	**669**
Income tax expense	(168)	(77)	**(245)**	(106)	(23)	(129)
Results related to associates and joint ventures	342	-	**342**	(32)	-	(32)
Net profit for the year	**1,089**	**591**	**1,680**	**457**	**51**	**508**
Of which:						
- Attributable to non-controlling interests	3	1	**4**	(2)	4	2
- Dividend on Cumulative Preference Shares	6	-	**6**	7	-	7
- Available to holders of ordinary shares	1,080	590	**1,670**	452	47	499
Earnings per share (EPS)						
- Net basic EPS	6.26	3.42	**9.68**	2.64	0.27	2.91
- Net diluted EPS	6.23	3.40	**9.63**	2.62	0.27	2.89

The Operating profit in Discontinued operations amounting to €668 million comprises the regular activities of the RFM business in the first quarter of the reporting year (€28 million) and the book profit on the sale of the RFM business on 1 April 2021 (€640 million).

	2021	2020
Net profit from discontinued operations	**591**	**51**
Other comprehensive income		
Remeasurements of defined benefit pension plans	-	(1)
Tax related items that will not be reclassified to profit or loss	-	-
Items that will not be reclassified to profit or loss	**-**	**(1)**
Exchange differences on translation of foreign operations		
- Change for the year	4	(4)
Hedging reserve		
- Change for the year	-	1
Tax related items that may subsequently be reclassified to profit or loss	-	-
Items that may subsequently be reclassified to profit or loss	**4**	**(3)**
Total comprehensive income discontinued operations	**595**	**47**
Of which:		
- Attributable to non-controlling interests	3	4
- Available to equity holders of Koninklijke DSM N.V.	592	43

Impact on cash flow statement
The impact of the business that has been included as discontinued operations in the cash flow statement is shown in the following table.

	2021	2020
Net cash provided by / (used in):		
- Operating activities	(1)	134
- Investing activities	1,404	(47)
Net change in cash and cash equivalents	1,403	87

See also Note 26 Notes to the cash flow statement.

Assets and liabilities held for sale
DSM is committed to the sale of its Pentapharm business, and therefore classified end of 2021 the assets and liabilities as held for sale.

Impact on balance sheet
The impact of the reclassification of these activities on the DSM consolidated balance sheet is presented in the following table.

x € million	2021
Assets	
Non-current assets	
Property, plant and equipment	27
Current assets	
Inventories	23
Receivables	6
Total assets	56
Liabilities	
Non-current liabilities	5
Current liabilities	5
Total liabilities	10
Net assets	46

Other changes
In 2021, the following changes in DSM's share in subsidiaries occurred without impacting the classification of the participations.

	2021	2020
DSM Rainbow (Inner Mongolia) Biotechnology Co., Ltd.	100.0%	65.2%

See also Note 16 Equity.

4 Segment information

In 2021, DSM's reportable operating segments were Nutrition, Materials and the Innovation Center, as mentioned in Note 1 General information. DSM has segmented its operations by business activity from which revenues are earned and expenses incurred. These operating results are regularly reviewed by the entity's chief operating decision maker (CODM) to make decisions about resources to be allocated to the operating segment and assess its performance. DSM uses Adjusted

EBITDA as the main indicator to evaluate the consolidated performance as well as the performance per operating segment. Discrete financial information is available for each identified operating segment.

The accounting policies of the operating segments are the same as those described in the Summary of significant accounting policies. Transactions between segments are generally executed at market-based prices. Interest income, interest expense, and income tax expense or income are not allocated to segments as these amounts are not included in the measure of segment profit or loss reviewed by the CODM, or otherwise regularly provided to the CODM.

Our operating segment Nutrition serves the global industries for animal feed, food & beverage, pharmaceuticals, infant nutrition, dietary supplements, and personal care. It does so by the production of pure active ingredients, their incorporation into sophisticated forms, and the provision of tailored premixes and forward solutions.

Our operating segment Materials is a global player in specialty plastics, which are used in components for the electrical and electronics, automotive, flexible food-packaging, and consumer goods industries. Furthermore, Materials is a global player in providing innovative and sustainable ultra-strong, ultra-light Dyneema® fiber and fabrics.

Our operating segment Innovation Center focuses on innovation and the growth of DSM's existing core business through adjacent technologies via its Corporate Research Program as well as through the company's venturing and licensing activities. Additionally, it identifies and invests in new and innovative growth options. The Innovation Center is responsible for developing and extracting value from DSM's Emerging Business Areas.

Any consolidated activities outside the three reportable operating segments above are reported as the reportable segment 'Corporate Activities'. These mainly comprise operating and service activities as well as several costs that cannot be allocated to the operating segments.

DSM does not have a single external customer that represents 10% or more of total sales.

Geographical information

	Nether-lands	Switzer-land	Rest of Europe	North America	Latin America	China	Rest of Asia	Rest of the world	**Total**
2020									
Net sales by origin									
In € million	1,515	2,260	1,042	1,380	608	885	336	80	**8,106**
In %	19	28	13	17	7	11	4	1	**100**
Net sales by destination									
In € million	407	214	2,125	1,791	1,045	991	1,268	265	**8,106**
In %	5	3	26	22	13	12	16	3	**100**
Workforce at year-end (headcount)[1]	3,858	2,129	4,384	3,185	2,243	5,025	1,996	307	**23,127**
Average workforce (FTE)[1]	3,708	2,135	3,625	3,195	2,108	4,950	1,803	291	**21,815**
Intangible assets and Property, plant and equipment									
Capital expenditure	110	159	114	76	15	93	4	2	**573**
Carrying amount	1,614	1,452	2,097	1,742	282	810	188	30	**8,215**
Total assets (including assets held for sale)	4,084	2,125	2,676	2,552	776	1,382	639	112	**14,346**
2021									
Net sales by origin									
In € million	1,860	2,370	1,336	1,310	666	1,177	387	98	**9,204**
In %	20	26	15	14	7	13	4	1	**100**
Net sales by destination									
In € million	374	163	2,644	1,916	1,198	1,187	1,438	284	**9,204**
In %	4	2	28	21	13	13	16	3	**100**
Workforce at year-end (headcount)	3,006	2,174	4,161	3,018	2,290	4,704	1,709	296	**21,358**
Average workforce (FTE)[1]	3,040	2,099	4,065	2,971	2,255	4,768	1,771	299	**21,268**
Intangible assets and Property, plant and equipment									
Capital expenditure	108	147	162	87	20	77	5	2	**608**
Carrying amount	1,990	1,733	2,073	2,201	291	836	113	30	**9,267**
Total assets (including assets held for sale)	4,566	2,593	2,738	3,116	864	1,459	576	101	**16,013**

1 Refers to total group, including discontinued operations.

Business segments

2021	Nutrition	Materials	Innovation Center	Corporate Activities	Eliminations	**Total**
Financial performance						
Net sales	7,031	1,935	168	70	-	**9,204**
Supplies to other clusters	46	12	18		(76)	**-**
Supplies	7,077	1,947	186	70	(76)	**9,204**
Adjusted EBITDA[1]	1,447	435	26	(94)	-	**1,814**
EBITDA	1,396	414	17	(125)	-	**1,702**
Adjusted operating profit[1]	940	331	4	(136)	-	**1,139**
Operating profit	889	310	(10)	(168)	-	**1,021**
Depreciation and amortization	484	100	23	39	-	**646**
Impairments	22	3	10	-	-	**35**
- of which included in APM adjustments	-	-	6	-	-	**6**
Additions to provisions	8	16	15	32	-	**71**
Result related to associates and joint ventures	(3)	-	1	344	-	**342**
R&D costs[2]	194	59	39	31	-	**323**
Employee benefit costs	1,233	253	65	259	-	**1,810**
Financial position						
Total assets	11,002	1,570	566	2,819	56[3]	**16,013**
Total liabilities	2,744	495	63	3,304	10[3]	**6,616**
Capital employed at year-end	9,550	1,005	407	(1)	-	**10,961**
Capital expenditure	488	65	2	53	-	**608**
Share in equity of associates and joint ventures	38	3	1	22	-	**64**
Adjusted EBITDA margin (in %)	20.6	22.5	-	-	-	**19.7**
Workforce						
Average in fte	15,623	2,815	498	1,902	430[3]	**21,268**
Year-end (headcount)	16,091	2,885	578	1,804		**21,358**

1 See Note 2 Alternative performance measures for the reconciliation to Adjusted EBITDA of €1,814 million (2020: €1,534 million) and other IFRS performance measures.

2 R&D costs relate to the functional area Research & Development and exclude R&D costs included in the functional areas Cost of sales and Marketing & Sales as well as R&D expenditure capitalized.

3 The figures presented under 'eliminations' relate to the assets and liabilities reclassified as held for sale and the workforce for the discontinued operations.

Business segments

2020	Nutrition	Materials	Innovation Center	Corporate Activities	Eliminations	Total
Financial performance						
Net sales	6,365	1,518	184	39	-	8,106
Supplies to other clusters	53	8	21		(82)	-
Supplies	6,418	1,526	205	39	(82)	8,106
Adjusted EBITDA[1]	1,338	272	21	(97)	-	1,534
EBITDA	1,211	249	6	(98)	-	1,368
Adjusted operating profit[1]	919	168	(17)	(141)	-	929
Operating profit	792	145	(133)	(142)	-	662
Depreciation and amortization	407	99	38	43	-	587
Impairments	13	4	101	1	-	119
- of which included in APM adjustments	-	-	101	-	-	101
Additions to provisions	70	19	8	7	-	104
Results related to associates and joint ventures	(1)	-	(84)	53	-	(32)
R&D costs[2]	169	60	145	24	-	398
Employee benefit costs	1,102	226	83	273	-	1,684
Financial position						
Total assets	9,477	1,035	599	2,139	1,096[3]	14,346
Total liabilities	2,451	379	37	3,738	254[3]	6,859
Capital employed at year-end	8,305	953	436	-	-	9,694
Capital expenditure	441	63	35	34	-	573
Share in equity of associates and joint ventures	30	3	2	58	-	93
Adjusted EBITDA margin (in %)	21.0	17.9				18.9
Workforce						
Average in fte	14,535	2,852	613	2,012	1,803[3]	21,815
Year-end (headcount)	15,838	2,857	579	2,039	1,814[3]	23,127

1 See Note 2 Alternative performance measures for the reconciliation to Adjusted EBITDA of €1,534 million and other IFRS performance measures.

2 R&D costs relate to the functional area Research & Development and exclude R&D costs included in the functional areas Cost of sales and Marketing & Sales as well as R&D expenditure capitalized.

3 The figures presented under 'eliminations' relate to the assets and liabilities reclassified as held for sale and the workforce for the discontinued operations.

5 Net sales and costs (continuing operations)

Net sales

	2021	2020
Goods sold	8,992	7,931
Services rendered	197	158
Royalties	15	17
Total	**9,204**	**8,106**

Fulfillment of the performance obligations related to goods sold is measured using the commercial shipment terms as an indicator for the transfer of control. Fulfillment of the performance obligations for services rendered is identified according to the individual contract. The payment terms are determined per business segment on a customer basis. DSM has neither specific obligations for returns or refunds, nor specific warranties or other related obligations.

Disaggregation of net sales

	2021	2020
Nutrition		
- Animal Nutrition & Health	3,502	3,025
- Human Nutrition & Health	2,207	2,143
- Personal Care & Aroma Ingredients	484	404
- Other	122	145
DSM Nutritional Products	6,315	5,717
DSM Food Specialties	716	648
Total Nutrition	7,031	6,365
Materials		
DSM Engineering Materials	1,600	1,217
DSM Protective Materials	335	301
Total Materials	1,935	1,518
Innovation Center	168	184
Corporate Activities	70	39
Total	9,204	8,106

Total costs

In 2021, total operating costs amounted to €8.2 billion, €0.8 billion higher than in 2020, when these costs stood at €7.4 billion. Total operating costs in 2021 included Cost of sales amounting to €6.0 billion (2020: €5.3 billion); gross margin as a percentage of net sales stood at 34% (2020: 34%).

Employee benefit costs

	2021	2020
Wages and salaries	1,494	1,373
Social security costs	178	164
Pension costs (see also Note 24)	116	118
Share-based compensation (see also Note 27)	22	29
Total	1,810	1,684

Depreciation, amortization and impairments

	2021	2020
Amortization of intangible assets	221	193
Depreciation of property, plant and equipment owned	374	344
Depreciation of right-of-use assets	51	50
Impairment losses	35	119
Total	681	706

Other operating income

	2021	2020
Release of provisions	24	11
Gain on sale of assets and activities	13	-
Insurance benefits	11	29
Amendments / settlements to pension plans	9	-
Earn-out payments and other settlements	2	7
Legal and other settlements	2	23
Sundry	34	32
Total	95	102

Other operating expense

	2021	2020
Additions to provisions	67	93
Exchange differences	7	18
Acquisitions / Disposals	25	55
Sundry	29	34
Total	128	200

6 Financial income and expense

	2021	2020
Financial income		
Interest income	3	17
Fair value change in derivatives	10	27
Sundry	11	-
Total financial income	24	44
Financial expense		
Interest expense	(91)	(90)
Interest relating to lease liabilities	(5)	(6)
Interest relating to defined benefit plans	(2)	(4)
Fair value change in derivatives	(17)	-
Capitalized interest during construction	4	6
Exchange differences	-	(4)
Unwinding of discounted payables	(16)	(4)
Sundry	(3)	(9)
Total financial expense	(130)	(111)
Financial income and expense	(106)	(67)

In 2021, the interest rate applied in the capitalization of interest during construction was 3% for the first 6 months and 2.5% for the last 6 months (2020: 3%).

Financial income and expense remained roughly stable excluding the impact of the fair value change in derivatives.

7 Income tax

The income tax expense on continuing operations was €168 million, which represents an effective income tax rate of 18.4% (2020: €106 million, representing an effective income tax rate of 17.9%). The amount excludes tax expense from discontinued operations of €77 million (2020: €23 million) and can be broken down as follows.

	2021	2020
Current tax expense:		
- Current year	(120)	(155)
- Prior-year adjustments	1	8
- Tax credits compensated	4	4
- Non-recoverable withholding tax	(7)	(2)
Total current tax expense	**(122)**	**(145)**
Deferred tax expense:		
- Originating from temporary differences and their reversal	(3)	47
- Prior-year adjustments	5	(5)
- Change in tax rate	4	(2)
- Changes arising from write-down of deferred tax assets	(18)	(3)
- Changes in previously and newly recognized tax losses and tax credits	(21)	(7)
- Other changes in tax losses and tax credits	(13)	9
Total deferred tax expense	**(46)**	**39**
Total tax expense	**(168)**	**(106)**
Of which related to:		
- Taxable result excl. APM adjustments	(198)	(160)
- APM adjustments	30	54

The relationship between the income tax rate in the Netherlands and the effective tax rate on the taxable result can be explained as follows.

Effective tax rate

In %	2021	2020
Domestic income tax rate	25.0	25.0
Tax effects of:		
- Deviating rates	(4.9)	(5.2)
- Change in tax rates	(0.4)	0.2
- Tax-exempt income and non-deductible expense	(3.1)	(2.4)
- Other effects	2.6	0.9
Effective tax rate taxable result, excl. APM adjustments	**19.2**	**18.5**
APM adjustments (see Note 2)	(0.8)	(0.6)
Total effective tax rate	**18.4**	**17.9**

The total effective tax rate on the taxable result in 2021 was 18.4% (2020: 17.9%), excluding APM adjustments this was 19.2% (2020: 18.5%).

The effective tax rate in 2021 was positively impacted by the geographical spread and the tax-exempt income under local tax law in various countries.

The increase of the effective tax rate excluding APM adjustments was mainly due to uncertainties under local laws, partly compensated by higher tax-exempt income in several countries and the higher tax rate in the Netherlands as of 2022.

The balance of the deferred tax assets and deferred tax liabilities increased by €91 million owing to the changes presented in the following table.

Deferred tax assets and liabilities

	2021	2020
Balance at 1 January		
Deferred tax assets	240	217
Deferred tax liabilities	(431)	(296)
Total	**(191)**	**(79)**
Changes:		
- Income tax income / (expense) in income statement	(77)	45
- Income tax: change in tax percentage	4	(4)
- Income tax: tax result share in associates	-	22
Total income statement	**(73)**	**63**
- Income tax expense in OCI	(13)	(1)
- Acquisitions and disposals	(7)	(185)
- Consolidation changes	(3)	-
- Exchange differences	(11)	11
- Reclassification to held for sale	9	(2)
- Transfer	7	2
Balance at 31 December	**(282)**	**(191)**
Of which:		
- Deferred tax assets	203	240
- Deferred tax liabilities	(485)	(431)

In various countries, DSM has taken standpoints regarding its tax position which may at any time be challenged, or have already been challenged, by the tax authorities, because the authorities in question interpret the law differently. These uncertainties are taken into account in determining the probability of realization of deferred tax assets and liabilities.

The deferred tax assets and liabilities relate to the following balance sheet items.

Deferred tax assets and liabilities by balance sheet item

	2021		2020	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Intangible assets	19	(368)	22	(348)
Property, plant and equipment	19	(175)	27	(173)
Right-of-use assets	-	(38)	-	(44)
Financial assets	33	(25)	28	(15)
Inventories	56	(39)	51	(42)
Receivables	6	(22)	14	(24)
Lease liabilities non-current	31	-	33	-
Other non-current liabilities	16	(2)	12	(2)
Non-current provisions	70	-	94	(4)
Other current liabilities	83	(4)	66	(6)
Lease liabilities current	11	-	10	-
	344	**(673)**	**357**	**(658)**
Tax losses carried forward	47		110	
Set-off	(188)	188	(227)	227
Total	**203**	**(485)**	**240**	**(431)**

No deferred tax assets were recognized for loss carryforwards amounting to €203 million (2020: €267 million). Unrecognized loss carryforwards amounting to €98 million will expire in the years up to and including 2026 (2020: €134 million up to and including 2025), €37 million between 2027 and 2031 (2020: €71 million between 2026 and 2030) and the remaining €68 million in 2032 and beyond (2020: €62 million between 2031 and beyond). In addition, an amount of €23 million (2020: €15 million) of withholding taxes were unrecognized.

The valuation of deferred tax assets depends on the probability of the reversal of temporary differences and the utilization of tax loss carryforwards, tax credits and withholding tax. Deferred tax assets are recognized for future tax benefits arising from temporary differences and for tax loss carryforwards to the extent that the tax benefits are probable. As of 1 January 2022, tax losses may be carried forward indefinitely in the Netherlands, and loss compensation is allowed up to €1 million a year. Above €1 million, losses can be compensated only for 50%. DSM has to assess the likelihood that deferred tax assets will be recovered from future taxable profits. Deferred tax assets are reduced if, and to the extent that, it is not probable that all or some portion of the deferred tax assets will be realized. In the event that actual future results differ from estimates, and depending on tax strategies that DSM may be able to implement, changes to the measurement of deferred taxes could be required, which could have an impact on the company's financial position and profit for the year.

8 Intangible assets

	Goodwill	Licenses and patents	Under construction	Development projects	Other	**Total**
Balance at 1 January 2020						
Cost	2,301	216	71	338	1,966	**4,892**
Amortization and impairment losses	18	116	-	71	1,172	**1,377**
Carrying amount	**2,283**	**100**	**71**	**267**	**794**	**3,515**
Changes in carrying amount:						
- Capital expenditure	-	1	77	42	43	**163**
- Put into operation	-	11	(59)	-	48	**-**
- Acquisitions	729	3	36	34	870	**1,672**
- Amortization	-	(13)	-	(35)	(152)	**(200)**
- Impairment losses	(20)	(14)	-	(74)	(2)	**(110)**
- Exchange differences	(138)	(2)	-	-	(28)	**(168)**
- Reclassification to held for sale	(387)	(3)	(1)	(28)	(18)	**(437)**
- Other	-	(2)	(9)	17	(1)	**5**
	184	**(19)**	**44**	**(44)**	**760**	**925**
Balance at 31 December 2020						
Cost	2,487	202	115	380	2,654	**5,838**
Amortization and impairment losses	20	121	-	157	1,100	**1,398**
Carrying amount	**2,467**	**81**	**115**	**223**	**1,554**	**4,440**
Changes in carrying amount:						
- Capital expenditure	-	1	85	48	3	**137**
- Drawing rights	-	-	-	-	21	**21**
- Put into operation	-	-	(45)	-	45	**-**
- Acquisitions	352	12	-	-	381	**745**
- Amortization	-	(15)	-	(28)	(178)	**(221)**
- Impairment losses	(5)	(1)	-	(11)	(2)	**(19)**
- Exchange differences	138	6	1	7	49	**201**
- Reclassification to held for sale	(1)	-	-	(1)	-	**(2)**
- Transfers	-	31	-	-	(31)	**-**
- Other	-	-	-	2	6	**8**
	484	**34**	**41**	**17**	**294**	**870**
Balance at 31 December 2021						
Cost	2,965	236	156	414	3,148	**6,919**
Amortization and impairment losses	14	121	-	174	1,300	**1,609**
Carrying amount	**2,951**	**115**	**156**	**240**	**1,848**	**5,310**

The amortization of intangible assets is included in Cost of sales, Marketing & Sales, Research & Development and General & Administrative expenses.

Over the past few years, DSM has acquired several entities in business combinations that have been accounted for by the acquisition method, resulting in recognition of goodwill and other intangible assets. The amounts assigned to the acquired assets and liabilities are based on assumptions and estimates about their fair values. In making these estimates, management consults independent, qualified appraisers if appropriate.

The impairment losses in 2020 related mainly to impairments of intangible assets relating to DSM Bio-based Products & Services and DSM Advanced Solar. For further information, see also Note 2 Alternative performance measures.

The breakdown of the carrying amount of goodwill at year-end 2021 is as follows.

Goodwill per acquisition

Acquisition	2021	2020	Cash generating unit	Functional Currency	Year of acquisition
Erber Group	470	470	DSM Nutritional Products	EUR	2020
Martek	410	378	DSM Nutritional Products	USD	2011
Glycom	345	344	DSM Nutritional Products	DKK	2020
Fortitech	307	283	DSM Nutritional Products	USD	2012
Ocean Nutrition Canada	207	190	DSM Nutritional Products	CAD	2012
First Choice Ingredients[1]	194	-	DSM Food Specialties	USD	2021
Andre Pectin	147	131	DSM Food Specialties	CNY	2019
Kensey Nash	143	132	DSM Biomedical	USD	2012
The Polymer Technology Group	77	71	DSM Biomedical	USD	2008
Yimante	74	66	DSM Nutritional Products	CNY	2019
Vestkorn Milling[1]	70	-	DSM Food Specialties	NOK	2021
Tortuga	62	62	DSM Nutritional Products	BRL	2013
Midori	58	-	DSM Nutritional Products	USD	2021
Other acquisitions	387	340			
Total	2,951	2,467			

1 Based on provisional PPA, see Note 3 Change in the scope of the consolidation.

Goodwill per Cash generating unit

Cash generating unit	2021	2020
DSM Nutritional Products	2,145	1,970
DSM Food Specialties	511[1]	227
DSM Biomedical	224	203
DSM Protective Materials	43	40
DSM Engineering Materials	28	27
Total	2,951	2,467

1 Contains provisional PPA, see Note 3 Change in the scope of the consolidation.

The annual impairment tests of goodwill are performed in the fourth quarter. The recoverable amount of the Cash generating units (CGUs) is based on a value-in-use calculation. DSM Nutritional Products and DSM Food Specialties are the CGUs to which a significant amount of goodwill is allocated.

The cash flow projections are derived from DSM's business plan as adopted by the Managing Board and updated periodically for example when the strategy is updated. Mature businesses come to a terminal value after five years. The terminal value growth rate is determined with the assumption of limited inflationary growth. For emerging businesses, an explicit forecast period of ten years is used with the same assumption for growth in the terminal value. The key assumptions in the cash flow projections relate to the market growth for the CGUs and the related revenue projections, EBITDA developments, and the rates used for discounting cash flows.

Key assumptions for goodwill impairment tests

	2021	2020
Forecast period (years)		
- Mature business	5	5
- Emerging business	10	10
Terminal value growth	1%	1%
Pre-tax discount rate		
- DSM Nutritional Products	8.6%	9.1%
- DSM Food Specialties	9.0%	-
Organic sales growth		
DSM Nutritional Products		
- Year 1—5	4-7%	4-7%
DSM Food Specialties		
- Year 1—5	4-6%	-

For DSM Nutritional Products the growth assumptions are based on the growth of the global food and feed markets, for DSM Food Specialties on the growth assumptions of the global food and beverage market. A sensitivity test was performed on the impairment tests of the CGUs and showed that the conclusions of these tests would not have been different if a reasonable possible adverse change in key parameters had been assumed.

The market capitalization of DSM at 31 December 2021 amounted to €34,608 million (31 December 2020: €25,545 million) and was clearly above the carrying amount of net assets, thus providing an additional indication that goodwill was not impaired.

Development costs

The carrying amount of development costs at 31 December 2021 included €121 million (2020: €136 million), relating mainly to strategic projects which are not being amortized yet. The recoverable amount of these projects was estimated based on the present value of the future cash flows expected to be derived from the projects (value-in-use).

Other intangible assets

	Cost	Amortization	Carrying amount	2021 Of which acquisition-related	2020 Of which acquisition-related
Application software	356	(274)	82	35	25
Marketing-related	117	(52)	65	65	70
Customer-related	1,130	(468)	662	662	656
Technology-based	886	(161)	725	724	457
Drawing rights	272	(110)	162	-	-
Other	387	(235)	152	68	115
Total	**3,148**	**(1,300)**	**1,848**	**1,554**	**1,323**
Total 2020	2,654	(1,100)	1,554	1,323	

Other intangible assets include (partially provisional) customer relationships, which were obtained during the acquisition of Erber Group and Glycom in 2020, as well as CSK in 2019 and Fortitech in 2012. Technology-based intangibles were mainly obtained via the acquisition of Erber Group and Glycom in 2020 and F&F Amyris and FCI in 2021. Intangible assets are amortized on a straight-line basis and subject to impairment trigger testing. There are no intangible assets with an indefinite useful life (same as in 2020).

Other intangible assets also include drawing rights contracts with Fibrant. Fibrant will continue to supply at least 80% of DSM Engineering Materials' caprolactam needs in Europe and North America for 15 years (2015–2030) via a drawing rights contract, effectively maintaining DSM Engineering Materials' backward integration. Initially the fair value of this contract has been recognized as an intangible asset by DSM Engineering Materials; for subsequent measurement, the initial fair value is the deemed cost of the asset, which is subject to straight-line amortization. In 2021, an amount of €21 million was added due to a change in the projected deemed costs and a corresponding amount was added to the liability to Fibrant. At the end of 2021, the drawing rights had a carrying amount of €162 million (2020: €156 million), a remaining useful life of 9 years, and an amount of €58 million was still payable to Fibrant for the acquisition of the drawing rights (2020: €39 million).

9 Property, plant and equipment

Composition of Property, plant and equipment

	2021	2020
Property, plant and equipment owned	3,769	3,567
Right-of-use assets	188	208
Total	3,957	3,775

Property, plant and equipment owned

	Land and buildings	Plant and machinery	Other equipment	Under construction	Not used for operating activities	Total
Balance at 1 January 2020						
Cost	2,232	5,019	235	664	12	**8,162**
Depreciation and impairments	1,021	3,151	175	1	6	**4,354**
Carrying amount at 1 January 2020	**1,211**	**1,868**	**60**	**663**	**6**	**3,808**
Changes in carrying amount:						
- Capital expenditure	10	58	5	386	-	**459**
- Put into operation	84	350	15	(449)	-	**-**
- Acquisitions	95	90	10	8	2	**205**
- Disposals	-	(1)	-	-	-	**(1)**
- Depreciation	(81)	(269)	(20)	-	-	**(370)**
- Impairment losses	(4)	(12)	(1)	(3)	-	**(20)**
- Exchange differences	(53)	(82)	(3)	(22)	-	**(160)**
- Reclassification to held for sale	(103)	(177)	(12)	(57)	-	**(349)**
- Other changes	(1)	(1)	-	(3)	-	**(5)**
	(53)	**(44)**	**(6)**	**(140)**	**2**	**(241)**
Balance at 31 December 2020						
Cost	2,099	4,781	192	527	8	**7,607**
Depreciation and impairments	941	2,957	138	4	-	**4,040**
Carrying amount at 31 December 2020	**1,158**	**1,824**	**54**	**523**	**8**	**3,567**
Changes in carrying amount:						
- Capital expenditure	7	52	4	414	-	**477**
- Put into operation	61	312	17	(390)	-	**-**
- Acquisitions	5	7	-	-	-	**12**
- Disposals and deconsolidations	(22)	(16)	-	-	-	**(38)**
- Depreciation	(78)	(277)	(19)	-	-	**(374)**
- Impairment losses	(3)	(11)	(2)	2	-	**(14)**
- Exchange differences	54	108	3	20	-	**185**
- Reclassification to held for sale	(17)	(13)	(1)	(2)	-	**(33)**
- Transfer to RoU assets	(5)	-	-	-	-	**(5)**
- Other changes	2	(6)	-	(4)	-	**(8)**
	4	**156**	**2**	**40**	**-**	**202**
Balance at 31 December 2021						
Cost	2,108	5,490	219	564	8	**8,389**
Depreciation and impairments	946	3,510	163	1	-	**4,620**
Carrying amount at 31 December 2021	**1,162**	**1,980**	**56**	**563**	**8**	**3,769**

In 2021, impairment losses of €14 million (2020: €20 million) were recognized on Property, plant and equipment. See also Note 2 Alternative performance measures.

Right-of-use assets

	Land and buildings	Plant and machinery	Other equipment	Vehicles	Other	Total
Balance at 1 January 2020	160	8	33	29	2	232
Changes in carrying amount:						
New leases / terminations	10	-	-	11	-	21
Remeasurements	12	-	2	(1)	-	13
Acquisitions	8	-	-	1	-	9
Depreciation	(33)	(1)	(3)	(14)	-	(51)
Exchange rate differences	(9)	-	(1)	(2)	-	(12)
Reclassification to held for sale	(1)	-	-	(3)	-	(4)
	(13)	(1)	(2)	(8)	-	(24)
Balance at 31 December 2020						
Cost	199	9	37	39	3	287
Depreciation and impairments	(52)	(2)	(6)	(18)	(1)	(79)
Carrying amount at 31 December 2020	147	7	31	21	2	208
Changes in carrying amount:						
New leases / terminations	6	1	-	10	-	17
Remeasurements	(1)	1	2	-	-	2
Depreciation	(33)	(1)	(4)	(12)	(1)	(51)
Impairment losses	(2)	-	-	-	-	(2)
Transfer from PPE	5	-	-	-	-	5
Exchange rate differences	7	1	1	1	-	10
Reclassification to held for sale	-	(1)	-	-	-	(1)
	(18)	1	(1)	(1)	(1)	(20)
Balance at 31 December 2021	129	8	30	20	1	188
Cost	210	11	39	39	2	301
Depreciation and impairments	(81)	(3)	(9)	(19)	(1)	(113)
Carrying amount	129	8	30	20	1	188

For the disclosures on the lease liabilities that correspond with the right-of-use assets, see Note 19 Borrowings.

10 Associates and joint arrangements

Associates and joint ventures

The following table analyses, in aggregate, the carrying amount and share of profit and other results of associates and joint ventures.

	2021			2020
	Associates	Joint ventures	Total	Total
Balance at 1 January	**89**	**4**	**93**	**155**
- Share of the profit of associates and joint ventures	15	-	15	(71)
- Other comprehensive income	4	-	4	(6)
- Capital payments	2	3	5	8
- Dividends received	(9)	(1)	(10)	(1)
- Acquisitions	-	-	-	1
- Consolidation changes	(17)	-	(17)	-
- Disposals	(34)	-	(34)	-
- Fair value adjustments	10	(2)	8	-
- Other	(1)	1	-	7
Balance at 31 December	**59**	**5**	**64**	**93**

On 27 July 2021, DSM acquired in a step acquisition the remaining shares of Midori USA, Inc. (see also Note 3 Change in the scope of the consolidation). Before the acquisition, DSM accounted for its 36.5% stake as an associate and applied equity accounting. This previously held equity interest was recognized at a book value of €12 million and was revalued to its fair value of €22 million on acquisition date. The fair value step-up of €10 million was recognized in the income statement in Other results related to associates and joint ventures.

On 15 October 2021, CVC Capital Partners sold its AOC specialty resins business, in which DSM is a minority shareholder, to an affiliate of Lone Star Funds. Before the sale, DSM accounted for its share in AOC as an associate. DSM received an amount of €337 million in cash for its entire shareholding and recognized a book profit of €303 million, which is included under 'Other results related to associates and joint ventures' in the income statement.

Joint operations

The operations Veramaris (2017) and Avansya (2019) are accounted for in accordance with IFRS 11 for joint operations. DSM therefore recognizes their amounts for the assets, liabilities, revenues and expenses in accordance with the contractual entitlement and obligations of DSM.

11 Other financial assets

	Loans associates and joint ventures	Other participating interests	Other receivables	Other	Total
Balance at 1 January 2020	3	150	103	7	263
Changes:					
- Charged to the income statement	-	-	-	(2)	(2)
- Acquisitions	-	-	-	4	4
- Disposals	-	(47)	-	-	(47)
- Capital payments	-	11	-	-	11
- Loans granted / prepayments	1	-	8	-	9
- Repayments	-	-	(5)	4	(1)
- Exchange differences	-	-	(10)	-	(10)
- Transfers	-	-	(7)	(4)	(11)
- Changes in fair value	-	106	-	-	106
- Other	-	(1)	(6)	-	(7)
Balance at 31 December 2020	4	219	83	9	315
Changes:					
- Charged to the income statement	-	-	(14)	(2)	(16)
- Disposals	-	(123)	-	-	(123)
- Capital payments	-	35	-	-	35
- Loans granted / prepayments	-	-	10	-	10
- Repayments / (receipts)	-	-	(31)	1	(30)
- Exchange differences	-	-	3	-	3
- Transfers	(3)	14	(20)	(4)	(13)
- Changes in fair value	-	46	-	-	46
Balance at 31 December 2021	1	191	31	4	227

'Disposals' includes the divestment of part of DSM's minority share in Amyris, Inc. (€105 million) and other participating interests held by DSM Venturing (€18 million).

'Changes in fair value' consists mainly of the value increase of our minority share in Amyris, Inc. (€68 million) and the fair value adjustment of DSM's share in BCPE Max Dutch JVCo B.V. (-€36 million). These changes are posted to the Fair value reserve in Other comprehensive income.

12 Inventories

	2021	2020
Raw materials and consumables	621	491
Intermediates and finished goods	1,758	1,467
	2,379	1,958
Adjustments to lower net realizable value	(82)	(79)
Total	2,297	1,879

Changes in the adjustment to net realizable value

	2021	2020
Balance at 1 January	(79)	(81)
Additions charged to income statement	(20)	(18)
Utilization / reversals	20	18
Exchange differences	(3)	3
Acquisition	-	(2)
Reclassification to held for sale	-	1
Balance at 31 December	(82)	(79)

The carrying amount of inventories adjusted to net realizable value was €310 million (2020: €263 million).

13 Current receivables

	2021	2020
Trade receivables		
Trade accounts receivable	1,391	1,183
Other trade receivables	189	180
Deferred items	34	45
Receivables from associates	12	11
	1,626	1,419
Expected credit loss	(23)	(28)
Total Trade receivables	1,603	1,391
Income tax receivable	61	32
Other current receivables		
Other taxes and social security contributions	20	26
Employee-related receivables	-	2
Acquisition-/disposal- related receivables	2	4
Loans	-	16
Other receivables	5	7
Deferred items	5	5
Total Other current receivables	32	60
Total current receivables	1,696	1,483

Information about the expected credit loss that relates to trade accounts receivable resulting in a loss allowance is included under Credit risk in Note 23 Financial instruments and risks.

Deferred items comprised €39 million (2020: €50 million) in prepaid expenses that include advance payments for any expenditure that would have otherwise been made during the next 12 months.

14 Current investments

	2021	2020
Fixed term deposits	489	43
Total	489	43

All fixed-term deposits have been placed with institutions with a high credit rating in line with our counterparty policy. The purpose of the deposits is either to meet short-term cash commitments, or to manage liquidity to such extent that yields are optimized while allowing DSM sufficient freedom in fulfilling its (strategic) goals.

In 2021, fixed deposits increased due to the proceeds from the sale of our Resins & Functional Materials and associated businesses to Covestro AG, completed in April 2021.

For more information regarding the counterparty policy, see Note 23 Financial instruments and risks.

15 Cash and cash equivalents

	2021	2020
Deposits	318	28
Cash at bank and in hand	1,243	836
Payments in transit	-	5
Bills of exchange	-	2
Total	1,561	871

Deposits will be classified as ‘cash equivalent’ if held at banks with a maturity of less than three months at inception. Deposits will be classified as ‘current investments’ if the maturity is more than three months but less than or equal to one year. The purpose of the deposits is either to meet short-term cash commitments, or to manage liquidity to such extent, that yields are optimized, while allowing DSM sufficient freedom in fulfilling its (strategic) goals.

Cash at year-end 2021 was not being used as collateral and therefore was not restricted (same as in 2020).

In a few countries, DSM faces cross-border foreign exchange controls and/or other legal restrictions that limit its ability to make these balances available at short notice for general use by the group. The amount of cash held in these countries was €87 million at year-end 2021 (2020: €128 million). The cash will generally be invested or held in the relevant country and, given the other liquidity resources available to the group, does not significantly affect the ability of the group to meet its obligations.

16 Equity

	2021	2020
Balance at 1 January	7,487	7,835
Net profit for the year	1,680	508
Other comprehensive income	643	(323)
Options / share units granted	22	29
Dividend	(424)	(429)
Proceeds from reissue of ordinary shares	193	206
Acquisition of NCI without a change in control	(13)	(32)
Acquisition (divestment) of subsidiary with NCI	(24)	(1)
Repurchase of shares	(165)	(309)
Other changes	(2)	3
Balance at 31 December	9,397	7,487

‘Acquisition of NCI without a change in control’ in 2021 relates to the purchase of the remaining 35% non-controlling interest in DSM Rainbow (Inner Mongolia) Biotechnology Co., Ltd. See Note 17 Non-controlling interests.

Dividend

For the year 2021, the following dividends were proposed by the Managing Board.

	2021	2020
Per cumulative preference share A: €0.13 (2020: €0.16)	6	7
Per ordinary share: €2.50 (2020: €2.40)	432	413
Total	438	420

The proposed final dividend on ordinary shares is subject to approval by the Annual General Meeting of Shareholders and has not been deducted from Equity.

For a description of the rules of profit appropriation and of the statutory rights attached to Cumulative Preference Shares A and B, see Note 6 Shareholders' equity to the Parent company financial statements.

Share capital

On 31 December 2021, the authorized capital amounted to €1,125 million (2020: €1,125 million), distributed over 330,960,000 ordinary shares, 44,040,000 Cumulative Preference Shares A and 375,000,000 Cumulative Preference Shares B. All shares have a nominal value of €1.50 each. The outstanding shares are entitled to one vote per share at the General Meeting of Shareholders. All rights attached to the Company's shares held by the Group (treasury shares) are suspended until those shares are reissued.

Every year the Managing Board, with the approval of the Supervisory Board, shall decide which part of the profit shall be set aside. Out of the profit remaining, a dividend based on EURIBOR plus a premium at the company's discretion, shall be distributed insofar as possible on the Cumulative Preference Shares B. From the amount remaining of the profit, a dividend shall be distributed insofar as possible on the Cumulative Preference Shares A, the percentage based on the effective return on government loans, increased by a mark-up to be determined at the company's discretion. If, for any financial year, the distributions on the Cumulative Preference Shares B and A cannot be effected or cannot be fully effected because the profit after reservation does not suffice, the deficit shall be distributed to the debit of the following financial years. In that case, each time as much as possible, the overdue dividend, augmented by the dividend for the last expired financial year, shall be distributed, first on Cumulative Preference Shares B and next on Cumulative Preference Shares A. The remaining profit shall be put at the disposal of the General Meeting of Shareholders.

In the period from April 2019 until June 2020, DSM repurchased 6,638,971 shares with the stated intention to reduce its issued share capital. On 29 April 2021, DSM announced this share cancellation, resulting in a decrease of the number of issued ordinary shares from 181,425,000 to 174,786,029.

The changes in the number of issued and outstanding shares in 2020 and 2021 are shown in the following table.

Overview of shares

	Issued shares Ordinary	Issued shares Cum. Pref. A	Treasury shares Ordinary
Balance at 1 January 2020	181,425,000	44,040,000	8,976,245
Reissue of shares in connection with share-based payments			(1,460,174)
Repurchase of shares			2,876,035
Dividend in the form of ordinary shares			(1,186,445)
Balance at 31 December 2020	181,425,000	44,040,000	9,205,661
Number of treasury shares at 31 December 2020	(9,205,661)		
Number of shares outstanding at 31 December 2020	172,219,339	44,040,000	
Balance at 1 January 2021	181,425,000	44,040,000	9,205,661
Cancellation of issued shares	(6,638,971)		(6,638,971)
Reissue of shares in connection with share-based payments			(803,049)
Repurchase of shares			1,050,000
Bearer share certificates that have become void			7,466
Dividend in the form of ordinary shares			(1,003,808)
Balance at 31 December 2021	174,786,029	44,040,000	1,817,299
Number of treasury shares at 31 December 2021	(1,817,299)		
Number of shares outstanding at 31 December 2021	172,968,730	44,040,000	

The average number of ordinary shares outstanding in 2021 was 172,647,995 (2020: 171,535,921). All shares issued are fully paid.

The Cumulative Preference Shares A have been classified as equity, because there is no mandatory redemption and distributions to the shareholders are at the discretion of DSM.

On 31 December 2021, no Cumulative Preference Shares B were outstanding (same as 2020).

Share premium

Of the total share premium of €471 million (2020: €489 million), an amount of €89 million (2020: €91 million) can be regarded as entirely free of tax.

Treasury shares

In 2021, DSM repurchased 1.1 million shares for an amount of €165 million to cover commitments for stock dividend. DSM did not repurchase any shares in 2021 to fulfill its obligations under share-based compensation plans. Furthermore, 6,638,971 ordinary shares held in treasury since the execution of the share buyback program earmarked for capital reduction were canceled.

At 31 December 2021, DSM possessed 1,817,299 (2020: 9,205,661) ordinary shares with a nominal value of €3 million, or 0.83% (2020: 4.08%) of the share capital. The average purchase price of the ordinary treasury shares as at 31 December 2021 was €97.50 (2020: €105.98). At 31 December 2021, 1,665,073 (2020: 2,460,656) of the total number of treasury shares outstanding were held for servicing share-option rights and share plans, 152,226 (2020: 106,034) shares for stock dividend, and no more shares (2020: 6,638,971) were earmarked for capital reduction.

Other reserves in Shareholders' equity

	Translation reserve	Hedging reserve	Reserve for share-based compensation	Fair value reserve	Total
Balance at 1 January 2020	162	(122)	51	5	96
Changes:					
Fair-value changes of derivatives	-	40	-	-	40
Release to income statement	-	20	-	-	20
Fair-value changes of other financial assets	-	-	-	106	106
Exchange differences	(451)	-	-	-	(451)
Options and performance shares granted	-	-	29	-	29
Options and performance shares exercised/canceled	-	-	(39)	-	(39)
Transfer to retained earnings	-	-	-	(30)	(30)
Changes in joint ventures and associates	(2)	-	-	-	(2)
Income tax	2	(6)	-	(8)	(12)
Total changes	(451)	54	(10)	68	(339)
Balance at 31 December 2020	(289)	(68)	41	73	(243)
Changes:					
Fair-value changes of derivatives	-	(24)	-	-	(24)
Release to income statement	(13)	7	-	-	(6)
Fair-value changes of other financial assets	-	-	-	46	46
Exchange differences	478	-	-	-	478
Options and performance shares granted	-	-	22	-	22
Options and performance shares exercised/canceled	-	-	(24)	-	(24)
Transfer to retained earnings	-	-	-	(101)	(101)
Changes in joint ventures and associates	1	-	-	-	1
Income tax	-	8	-	(1)	7
Total changes	466	(9)	(2)	(56)	399
Balance at 31 December 2021	177	(77)	39	17	156

The increase in the Translation reserve in 2021 is mainly caused by a weakening of the euro against the US dollar, Chinese renminbi and Swiss Franc. As a consequence, the total value of the subsidiaries increased, which led to a positive exchange difference of €478 million.

The Translation reserve, Hedging reserve and Fair value reserve (partly) are legal reserves in accordance with Dutch law and cannot be distributed to shareholders. Additional information is provided in Note 6 Shareholders' equity to the Parent company financial statements.

In the reporting year, DSM sold part of its shares in Amyris, Inc., which is accounted for as an Other participating interest. The related accumulated fair value increase of €93 million up to the date of sale has been transferred within equity from the Fair value reserve to Retained earnings.

17 Non-controlling interests

	2021				2020
	Andre Pectin	Yimante	Other	Total	
% of non-controlling interest	25%	25%			
Balance at 1 January	35	21	32	88	104
Changes:					
- Share of profit/charged to income statement	4	1	(1)	4	2
- Acquisitions	-	-	-	-	(1)
- Divestments	-	-	(23)	(23)	-
- Other consolidation changes	-	-	2	2	(10)
- Capital payments	-	-	3	3	3
- Dividend paid	(2)	-	(1)	(3)	(6)
- Exchange differences	5	2	1	8	(4)
Total changes	7	3	(19)	(9)	(16)
Balance at 31 December	42	24	13	79	88

'Divestments' relates to the derecognition of the non-controlling interest in DSM Eternal Resins Co. Ltd. (€13 million), DSM Resins Far East Ltd. (€7 million) and Japan Fine Coatings Co. Ltd. (€3 million) following the divestment of the RFM business.

Not fully-owned subsidiaries on a 100% basis

	2021				2020
	Andre Pectin	Yimante	Other	Total	
Assets					
Intangible assets	61	24	19	104	117
Property, plant and equipment	45	133	150	328	320
Other non-current assets	2	25	43	70	56
Inventories	37	9	16	62	70
Receivables	38	30	35	103	110
Cash and cash equivalents	9	11	29	49	49
Total assets	192	232	292	716	722
Liabilities					
Provisions (non-current)	14	-	-	14	16
Borrowings (non-current)	-	101	71	172	110
Other non-current liabilities	-	1	1	2	17
Borrowings and derivatives (current)	-	-	67	67	100
Other current liabilities	10	33	75	118	136
Total liabilities	24	135	214	373	379
Net assets (100% basis)	168	97	78	343	343
Net sales	76	5	108	189	206
Net profit for the year	14	3	(11)	6	12
Cash provided by / (used in) operating activities	(36)	(11)	(12)	(59)	(29)

18 Provisions

	Restructuring costs and termination benefits	Environmental costs	Other long-term employee benefits	Other provisions	Total
Balance at 1 January 2020	31	59	41	37	168
Of which current	21	13	4	10	48
Changes:					
- Additions	86	3	3	12	104
- Releases	(7)	(16)	-	(5)	(28)
- Uses	(62)	(7)	(2)	(4)	(75)
- Reclassification to held for sale	-	-	(4)	-	(4)
- Acquisitions	2	1	3	15	21
- Other change	-	-	-	(2)	(2)
Total changes	19	(19)	-	16	16
Balance at 31 December 2020	50	40	41	53	184
Of which current	42	7	5	7	61
Changes:					
- Additions	56	-	6	9	71
- Releases	(10)	-	-	(12)	(22)
- Uses	(43)	(3)	(6)	(17)	(69)
- Other change	-	-	(1)	1	-
Total changes	3	(3)	(1)	(19)	(20)
Balance at 31 December 2021	53	37	40	34	164
Of which current	49	4	5	10	68

In cases where the effect of the time value of money is material, provisions are measured at the present value of the expenditures expected to be required to settle the obligation. The discount rate used increased from 0.7% to 1.3%. The balance of provisions measured at present value increased by less than €1 million in 2021 in view of the passage of time (same as in 2020).

The provisions for restructuring costs and termination benefits mainly relate to the costs of redundancy schemes connected to the dismissal of employees and costs of termination of contracts. These provisions have an average life of 1 to 3 years.

During 2021, a restructuring program was launched for the Materials cluster. A provision of €16 million was recognized for this program, of which €6 million was used during the year.

Furthermore, a restructuring program following up on the new strategy of DSM was launched at the end of 2021. A provision of €28 million was recognized for this program, of which €3 million was used during the year.

The other additions to the provisions for restructuring costs and termination benefits in 2021 relate mainly to the various smaller restructuring projects (same as in 2020).

The provisions for environmental costs relate to soil clean-up obligations, among other things. These provisions have an average life of around 10 years.

The provisions for other long-term employee benefits relate mainly to length-of-service and end-of-service payments. The average life of this provision is estimated to be between 10 and 12 years.

Several items have been combined under Other provisions, for example, demolition costs, onerous contracts and legal claims. These provisions have an average life of 1 to 10 years.

19 Borrowings

	2021 Total	2021 Of which current	2020 Total	2020 Of which current
Debenture loans	2,739	-	3,237	-
Private loans	116	13	81	2
Lease liabilities	195	48	215	47
Credit institutions	43	43	53	53
Total	**3,093**	**104**	**3,586**	**102**

In agreements governing loans with a residual amount at year-end 2021 of €2,739 million (31 December 2020: €3,237 million), negative pledge clauses have been included that restrict the provision of security.

The documentation of the €500 million bond issued in March 2014, the €500 million bond issued in April 2015, the €750 million bond issued in September 2016, and both €500 million bonds issued in June 2020 include a change-of-control clause. This clause allows the bond investors to request repayment at par if 50% or more of the DSM shares are controlled by a third party and if the company is downgraded below investment grade (< BBB-). DSM's credit rating has been kept stable throughout 2021 and is set-out as follows: Moody's: "A3"/stable outlook and S&P: "A-"/stable outlook. At 31 December 2021, there was €1,043 million in borrowings outstanding with a remaining term of more than 5 years (at 31 December 2020, €1,813 million).

In June 2021, DSM exercised its right to redeem early, in full and at the make-whole redemption amount, the €500 million bond issued on 24 September 2015 and with scheduled maturity of 26 September 2022. The make-whole redemption amount was €1,033.91 per €1,000 in principal amount of notes inclusive of accrued and unpaid interest up to, but excluding, the make-whole redemption date falling on 18 June 2021.

The schedule of repayment of borrowings is as follows.

Borrowings by maturity

	2021	2020
2021	-	102
2022	104	553
2023	73	37
2024	549	546
2025 and 2026	1,324	1,304
After 2026	1,043	1,044
Total	**3,093**	**3,586**

A breakdown by currency is given in the following table.

Borrowings by currency

	2021	2020
EUR	2,864	3,351
CNY	93	80
USD	80	88
BRL	10	11
TWD	-	12
Other	46	44
Total	**3,093**	**3,586**

On balance, total borrowings decreased by €493 million due to the following changes.

Movements of borrowings

	2021	2020
Balance at 1 January	3,586	2,653
Loans taken up	37	1,123
Repayments	(513)	(268)
Unwinding (interest)	7	7
Acquisitions/consolidation changes	11	205
Disposals	(30)	-
Reclassification to held for sale	-	(4)
Changes in debt to credit institutions	12	(95)
New lease arrangements (incl. remeasurements)	19	34
Payment of lease liabilities	(54)	(55)
Exchange differences	18	(14)
Balance at 31 December	3,093	3,586

The average effective interest rate on the portfolio of borrowings outstanding in 2021, including hedge instruments related to these borrowings, amounted to 1.86% (2020: 1.78%).

A breakdown of debenture loans is given below.

Debenture loans

			Nominal amount	2021	2020
EUR loan	2.38%	2014—2024	500	499	499
EUR loan	1.00%	2015—2025	500	499	498
EUR loan	1.38%	2015—2022	500	-	500
EUR loan	0.75%	2016—2026	750	749	748
EUR loan	0.25%	2020—2028	500	498	497
EUR loan	0.625%	2020—2032	500	495	495
Total			3,250	2,739	3,237

All debenture loans have a fixed interest rate and are listed on the AEX.

- The 2.375% EUR bond 2014–2024 of €500 million was pre-hedged by means of forward starting swaps, resulting in an effective interest rate for this bond of 3.97%, including the settlement of the pre-hedge
- The 1% EUR bond 2015–2025 of €500 million was pre-hedged by means of forward starting swaps, resulting in an effective interest rate for this bond at 3.65%, including the settlement of the pre-hedge
- The 1.375% EUR bond 2015–2022 of €500 million had an effective interest rate of 1.40% and was early redeemed during 2021, as is mentioned above
- The 0.75% EUR bond 2016–2026 of €750 million was pre-hedged by means of a collar resulting in an effective interest rate for this bond of 1.08%, including the settlement of the pre-hedge
- The 0.25% EUR bond 2020–2028 of €500 million has an effective interest rate of 0.29%
- The 0.625% EUR bond 2020–2032 of €500 million has an effective interest rate of 0.70%

A breakdown of private loans is given below.

Private loans

	2021	2020
CNY loan	73	57
Other loans	43	24
Total	116	81

A breakdown of the lease liabilities is given below.

Lease liabilities by maturity

	2021	2020
2021	-	47
2022	47	38
2023	38	32
2024	30	27
2025	22	20
2026	16	14
After 2026	60	58
Total undiscounted lease liabilities at 31 December	213	236
Lease liabilities included in the Balance Sheet at 31 December	195	215
Current	48	47
Non-current	147	168

In addition to the contractual lease commitments, DSM has identified explicit renewal options available to DSM, which are currently not reasonably certain to be exercised and are therefore not included in the measurement of the lease.

The associated future lease payments which are uncommitted and optional for DSM, are estimated around €79 million (undiscounted; 2020: €78 million).

The interest expense on the lease liabilities was €5 million (2020: €6 million) and the total repayments of the lease liabilities amounted to €54 million in 2021 (2020: €55 million). These cash flows are reported as financing cash flows.

DSM's policy regarding financial-risk management is described in Note 23 Financial instruments and risks.

20 Other non-current liabilities

	2021	2020
Investment grants / customer funding	62	76
Deferred items	24	24
Drawing rights	49	36
Acquisition related liabilities	146	22
Other non-current liabilities	2	5
Total	283	163

The increase in the Other non-current liabilities mainly relates to earn-out agreements regarding the acquisitions of the Amyris F&F bio-based intermediates business and Vestkorn Milling. See also Note 3 Change in the scope of the consolidation.

21 Current liabilities

	2021	2020
Trade payables		
Received in advance	10	11
Trade accounts payable	1,550	1,200
Notes and cheques due	4	2
Owing to associates and joint ventures	7	5
Total Trade payables	1,571	1,218
Income tax payable	77	45
Other current liabilities		
Other taxes and social security contributions	60	47
Interest	20	22
Pensions	2	2
Investment creditors	145	98
Employee-related liabilities	302	266
Payables associates and joint ventures relating to cash facility	1	2
Acquisition / divestment related liabilities	10	71
Total Other current liabilities	540	508
Total current liabilities	2,188	1,771

Included in trade accounts payable are amounts due to suppliers which could be part of a supply chain finance arrangement between the supplier and a third-party bank. DSM suppliers have the option to enter into such supply chain finance arrangements with third party banks, which provides them with the option of earlier payment based on terms linked to DSM's investment grade credit rating. If a supplier chooses to participate in such an arrangement, this does not impact the classification of the trade payable for DSM as these supply chain finance arrangements are concluded between the banks and the suppliers and do not alter the payment conditions between the supplier and DSM. Therefore, these amounts remain classified as trade payables.

22 Contingent liabilities and other financial obligations

The contingent liabilities and other financial obligations in the following table are not recognized in the balance sheet.

	2021	2020
Guarantee obligations on behalf of associates and third parties	206	196
Outstanding orders for projects under construction	11	30
Other	108	82
Total	325	308

Guarantee obligations are principally related to VAT and duties on the one hand and to financing obligations of associated companies or related third parties on the other. Guarantee obligations will only lead to a cash outflow when called upon. At year-end, no obligations had been called upon. Most of the outstanding orders for projects under construction will be completed in 2022. Other relates mainly to contingent liabilities in contracts for catalysts.

Litigation

DSM has a process in place to monitor legal claims periodically and systematically.

DSM is involved in several legal proceedings, most of which are related to the ordinary course of business. DSM does not expect these proceedings to result in liabilities that have a material effect on the company's financial position. In cases where it is probable that the outcome of the proceedings will be unfavorable, and the financial outcome can be measured reliably, a provision has been recognized in the financial statements and disclosed in Note 18 Provisions.

In 2015, an award was issued against DSM Sinochem Pharmaceuticals India Private Ltd. (DSP India) in a protracted arbitration case in India going back to 2004 involving a joint venture that DSP India had formed with Hindustan Antibiotics Ltd., which suspended its operations in 2003. DSP India (renamed to Centrient Pharmaceuticals after divestment by DSM in 2018) is covered by an indemnity from Koninklijke DSM N.V. for this case. In 2015, DSP India made an application with the Civil Court in Pune (India) to set aside the arbitral award. The award amounts to INR 127.5 crore (approximately €15 million as at year-end 2021) excluding interest of 12% per year as of 2004. In 2019, DSM provided the Bombay High Court a bank guarantee of INR 150 crore (approximately €18 million as at year-end 2021). At the end of 2021, the application proceedings were still pending. DSM has always viewed this case as unfounded and is of the opinion that the likelihood of the award being ultimately set aside is high. Therefore, no liability is recognized in respect of this case.

In 2019, Brazilian tax authorities disagreed with certain tax treatment as applied by the company in 2014–2016, which would have an effect on such prior year income tax returns of around BRL 65 million (approximately €10 million as at year-end 2021), including penalties and interest. DSM views this case as unfounded and considers that the possibility of winning this case is high, as confirmed by external legal counsel. Therefore, no liability relating to this case is recognized. During 2021 no relevant developments took place that alter this view.

23 Financial instruments and risks

Policies on financial risks

As an international company, DSM is exposed to financial risks in the normal course of business. A major objective of our group policy is to minimize the impact of market, liquidity and credit risk on the value of the company and its profitability. In order to achieve this, a systematic financial and risk management system has been established. For the purpose of securing compliance with the risk management policies, an internal control framework has been implemented, and the controls are monitored and tested periodically.

The derivatives contracts used by DSM are entered into exclusively in connection with the corresponding underlying transaction (hedged item) relating to normal operating business. The instruments used are customary products, such as currency swaps, cross-currency interest rate swaps, collars, forward exchange contracts and interest rate swaps.

An important element of DSM's financial policy and capital management is the allocation of cash flow. DSM primarily allocates cash flow to investments aimed at strengthening its business positions and securing the dividend payment to its shareholders. The remaining cash flow is further used for acquisitions and partnerships that strengthen DSM's competences and market positions. The net debt to equity ratio (gearing) is 9.7 (2020: 25.6), see also Note 25 Net debt.

Liquidity risk

Liquidity risk is the financial risk that an entity does not have and/or cannot access enough liquid cash and/or assets to meet its obligations. This can happen if the entity's credit rating falls, or when it experiences sudden unexpected cash outflows or an unexpected drop in cash inflows, or some other event that causes counterparties to avoid trading with or lending to the entity. Additionally, an entity can be indirectly exposed to market liquidity risk, if the financial markets on which it depends are subject to loss of liquidity.

The primary objective of liquidity management is to optimize the corporate cash position, among other things, by securing availability of sufficient liquidity for execution of payments by DSM entities, at the right time and the right place.

At 31 December 2021, DSM had cash and cash equivalents of €1,561 million (2020: €871 million).

At the end of 2021, DSM had one committed credit facility amounting to €1.0 billion, maturing on 28 May 2025. The agreement for the committed credit facility has neither financial covenants nor material adverse changes clauses. The committed credit facility links the interest rate to DSM's greenhouse gas (GHG) emission reduction. At year-end 2021, no loans had been taken up under the committed credit facilities. The committed credit facilities contracted in 2020 were canceled in 2021.

Furthermore, DSM has a commercial paper program amounting to €2.0 billion (2020: €2.0 billion). The company will use the commercial paper program to a total of not more than €1.0 billion (2020: €1.0 billion). At 31 December 2021, €0 million had been issued as commercial paper (2020: €0 million).

DSM has no derivative contracts to manage currency risk or interest rate risk outstanding under which margin calls by the counterparty would be permitted.

Floating-rate and fixed-rate borrowings and monetary liabilities analyzed by maturity are summarized in the following table. Borrowings excluding credit institutions are shown after taking into account related interest rate derivatives in designated hedging relationships. DSM manages financial liabilities and related derivative contracts on the basis of the remaining contractual maturities of these instruments. The remaining maturities presented in the following table provide an overview of the timing of the cash flows related to these instruments. Financial assets are not linked to financial liabilities in order to meet cash outflows on these liabilities.

Financial liabilities

	Carrying amount	Within 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	After 5 years
2020							
Borrowings	3,586	102	553	37	546	535	1,813
Monetary liabilities	1,851	1,787	21	5	5	5	28
Guarantees	196	-	-	-	-	-	196
Derivatives	14	13	1	-	-	-	-
Interest payments	168	34	34	27	27	15	31
Cash at redemption[1]	13	2	2	2	2	1	4
Total	**5,828**	**1,938**	**611**	**71**	**580**	**556**	**2,072**
2021							
Borrowings	3,093	104	73	549	553	771	1,043
Monetary liabilities	2,399	2,188	67	37	57	18	32
Guarantees	206	-	-	-	-	-	206
Derivatives	49	40	7	2	-	-	-
Interest payments	127	27	27	27	15	10	21
Cash at redemption[1]	11	2	2	2	1	1	3
Total	**5,885**	**2,361**	**176**	**617**	**626**	**800**	**1,305**

1 Difference between nominal redemption and amortized costs.

The following table reflects the exposure of the derivatives to liquidity risk. It contains the cash flows from derivatives with positive fair values and from derivatives with negative fair values to have a complete overview of the derivatives related cash flows. The amounts are gross and undiscounted.

Derivatives cash flow

	2021	2022	2023	2024	2025	2026	Total
2020							
Inflow	1,881	57	103	39	14		**2,094**
Outflow	(1,842)	(54)	(101)	(36)	(13)		**(2,046)**
2021							
Inflow		2,092	107	39	8	13	**2,259**
Outflow		(2,109)	(112)	(39)	(9)	(13)	**(2,282)**

Market risk

Market risk can be subdivided into interest rate risk, currency risk and price risk.

Interest rate risk

Interest rate risk is the risk that adverse movements of interest rates lead to high costs on interest-bearing debt or assets, which negatively impact the company's capability to honor its commitments. DSM's interest rate risk policy is aimed at minimizing the interest rate risks associated with the financing of the company and thus at the same time optimizing the net interest costs. This policy translates into a certain desired profile of fixed-interest and floating-interest positions, including cash and cash equivalents, with the floating-interest position not exceeding 60% of net debt.

At 31 December 2021, there was a CNY 166 million credit facility held by DSM Inner Mongolia Rainbow, based on floating rate SHIBOR (2020: CNY 180 million). There were no outstanding fixed-floating interest rate swaps (end of 2020 none).

The following analysis of the sensitivity of borrowings, assets and related derivatives to interest rate movements assumes an instantaneous 1% change in interest rates for all maturities from their level on 31 December 2021, with all other variables held constant. A 1% reduction in interest rates would result in a €18 million pre-tax loss in the income statement and equity on the basis of the composition of financial instruments on 31 December 2021, as floating-rate borrowings are more than compensated for by floating-rate assets (mainly cash). The opposite applies in the case of a 1% increase in interest rates. The sensitivity of financial instruments with a floating interest rate on 31 December 2021 to changes in interest rates is set out in the following table.

For more information regarding fixed or floating interest, see Note 19 Borrowings.

Sensitivity to change in interest rate

	2021			2020		
	Carrying amount	Sensitivity		Carrying amount	Sensitivity	
		+1%	(1%)		+1%	(1%)
Loans to associates and joint ventures	1	-	-	4	-	-
Current investments	489	5	(5)	43	-	-
Cash and cash equivalents	1,561	16	(16)	871	9	(9)
Short-term borrowings	(104)	(1)	1	(102)	(1)	1
Long-term borrowings	(2,989)	(2)	2	(3,484)	(2)	2

Currency risk

Currency risk is the risk that adverse movements of foreign currencies negatively impact the results of operations and the financial condition of the company, for example due to losses on assets or liabilities in foreign currencies. It is DSM's policy to hedge 100% of the currency risks resulting from sales and purchases at the moment of recognition of the receivables and payables. This is realized by transferring at spot rates the respective exposures to the group, which are, consequently (on a netted basis), hedged externally.

In addition, operating companies may — under strict conditions — opt for hedging currency risks from firm commitments and forecast transactions. The currencies giving rise to these risks are primarily USD, CHF and JPY. The risks arising from currency exposures are regularly reviewed and hedged when appropriate. DSM uses currency forward contracts, spot contracts, and average-rate currency forwards and options to hedge the exposure to fluctuations in foreign exchange rates. At year-end, these instruments had remaining maturities of less than one year. For the hedging of currency risks from firm commitments and forecast transaction cash flows, hedge accounting is applied. Hedge accounting is not applied for hedges of recognized trade receivables and trade payables hedged with short-term derivatives.

To hedge intercompany loans, receivables and payables denominated in currencies other than the functional currency of the subsidiaries, DSM uses currency swaps or forward contracts.

The following analysis of the sensitivity of net borrowings and derivative financial instruments to currency movements against the euro assumes a 10% change in all foreign currency rates against the euro from their level on 31 December 2021, with all other variables held constant. A +10% change indicates a strengthening of the foreign currencies against the euro. A -10% change represents a weakening of the foreign currencies against the euro.

Sensitivity to change in exchange rate

	2021			2020		
	Carrying amount	Sensitivity		Carrying amount	Sensitivity	
		+10%	(10%)		+10%	(10%)
Loans to associates and joint ventures	1	-	-	4	-	-
Current investments	489	2	(2)	43	1	(1)
Cash and cash equivalents	1,561	24	(24)	871	25	(25)
Short-term borrowings (excluding lease liabilities)	(57)	(2)	2	(55)	(4)	4
Long-term borrowings (excluding lease liabilities)	(2,841)	(7)	7	(3,316)	(5)	5
Lease liabilities	(195)	(14)	14	(215)	(15)	15
Currency forward contracts	(11)	8	(8)	9	17	(17)
Currency forwards related to net investments in foreign entities[1]	-	(8)	8	-	(13)	13
Average-rate forwards used for economic hedging[2]	(10)	22	(22)	35	19	(19)
Other derivatives	50	3	(3)	51	4	(4)

1 Fair-value change reported in Translation reserve.
2 Fair-value change reported in Hedging reserve.

Sensitivity changes on these positions will generally be recognized in profit or loss or in the translation reserve in equity, with the exception of the instruments for which cash flow hedge accounting or net-investment hedge accounting is applied.

In case of a strengthening or weakening of the euro against USD, CHF and CNY (being the key currencies), this would affect the translation of financial instruments denominated in these currencies taking into account the effect of hedge accounting and assuming all other variables being constant.

	Profit or loss		Equity	
	Strengthening	Weakening	Strengthening	Weakening
EUR				
USD (10% movement)	(140)	140	(277)	277
CHF (10% movement)	10	(10)	(231)	231
CNY (10% movement)	(17)	17	(95)	95

Price risk

Financial instruments that are subject to changes in stock exchange prices or indexes are subject to a price risk. At year-end 2021, mainly other participating interests are subject to price risks.

Credit risk

Credit risk is the risk that a (commercial or financial) counterparty may not be able to honor a financial commitment according to the contractual agreement with DSM. The company manages the credit risk to which it is exposed by applying credit limits per institution and by dealing exclusively with institutions that have a high credit rating.

At the balance sheet date, there were no significant concentrations of credit risks.

For all financial assets measured at amortized cost, the estimation of the loss allowance for doubtful accounts receivable is based on an expected credit loss (ECL) model.

For trade receivables, DSM uses an allowance matrix to measure the lifetime ECL for trade receivables. The loss rates depend among other things on the specified aging categories and are based on historical write-off percentages, taking market developments into account.

For other financial assets, DSM applies an ECL model that reflects the size and significance of DSM's exposure to credit loss. The ECL is based on the allocation of a credit risk grade which is based on data that is determined to be predictive of the risk of loss (including but not limited to external ratings, audited financial statements, management accounts and cash flow projections and available press information about customers) and applying experienced credit judgement. Credit risk grades are defined using qualitative and quantitative factors that are indicative of the risk of default and are aligned to external credit rating definitions from Moody's.

Risk of default is herewith considered as the risk of bankruptcy, or any legal impediment to the timely payment of either interest and/or principal, as well as missed or delayed disbursement of either interest and/or principal.

The loss allowance on non-current financial assets that has been taken into consideration at the end of 2021 was nil (2020: €5 million).

With regard to treasury activities (for example cash, cash equivalents and derivatives held with banks or financial institutions) it is ensured that financial transactions are only concluded with counterparties that have at least a Moody's credit rating of A3 for long-term instruments. At Business Group level, outstanding receivables are continuously monitored by management. Appropriate allowances are made for any credit risks that have been identified in line with the expected credit loss policy.

The development of the outstanding receivables per aging category is as follows.

	2021	2020
Neither past due nor impaired	1,070	924
1–29 days overdue	179	165
30–89 days overdue	118	70
90 days or more overdue	24	24
Total	1,391	1,183

The table below provides information about the credit risk exposure per aging category and the ECL for trade accounts receivable of €23 million at 31 December 2021 (31 December 2020: €28 million), see Note 13 Current receivables.

	2021			2020		
	Weighted average loss rate	Gross carrying amount	Expected credit loss	Weighted average loss rate	Gross carrying amount	Expected credit loss
Neither past due nor impaired	0.3%	1,070	(3)	0.4%	924	(4)
1–29 days overdue	1.0%	179	(2)	1.0%	165	(2)
30–89 days overdue	4.0%	118	(5)	6.0%	70	(4)
90 days or more overdue	55.0%	24	(13)	75.0%	24	(18)
Total		1,391	(23)		1,183	(28)

The changes in the expected credit loss for trade accounts receivable are as follows.

	2021	2020
Balance at 1 January	(28)	(17)
Net remeasurement of expected credit loss	2	(6)
Deductions	2	1
Acquisitions	-	(9)
Reclassification to held for sale	-	2
Disposals	1	-
Exchange differences	-	1
Balance at 31 December	(23)	(28)

The maximum exposure to credit risk is represented by the carrying amounts of financial assets that are recognized in the balance sheet, including derivative financial instruments. DSM has International Swaps and Derivatives Association (ISDA) agreements in place with its financial counterparties that allow for the netting of exposures in case of a default of either party, but do not meet the criteria for offsetting in the balance sheet. The following table presents the carrying amounts of the derivative financial instruments subject to these agreements. No significant agreements or financial instruments were available at the reporting date that would reduce the maximum exposure to credit risk.

Exposure to credit risk related to derivatives

	2021	2020
Receivables from derivatives presented in the balance sheet	78	109
Related amounts not offset in the balance sheet	(14)	(10)
Net amount	64	99
Liabilities from derivatives presented in the balance sheet	(49)	(14)
Related amounts not offset in the balance sheet	14	10
Net amount	(35)	(4)

Information about financial assets is presented in Note 10 Associates and joint arrangements, Note 11 Other financial assets, Note 13 Current receivables, Note 14 Current investments, Note 15 Cash and cash equivalents and Note 23 Financial instruments and risks.

DSM's policy is to grant corporate guarantees for credit support of subsidiaries and associates, to get access to credit facilities which are necessary for their operating working capital needs and which cannot be funded by the corporate cash pools and/or for bank guarantees needed for local governmental requirements. Information on guarantees is presented in Note 22 Contingent liabilities and other financial obligations.

Hedge accounting

DSM uses derivative financial instruments to manage financial risks relating to business operations and does not enter into speculative derivative positions. The purpose of cash flow hedges is to minimize the risk of volatility of future cash flows. These may result from a recognized asset or liability or a forecast transaction that is considered highly probable (firm commitment). DSM determines the existence of an economic relationship between the hedging instrument and hedging item based on currency, amount and timing of their respective cash-flows. The hedge ratio is dependent on the risk analysis related to the specific cash flow, and can vary from 50% to 100%. Changes in fair value as a result of changes in interest (for cash flows hedges) or as a result of changes in exchange rate (for firm commitment hedges) are recognized in Other comprehensive income (Hedging reserve), and ineffectiveness (mainly as a result of changes in timing of the hedged transactions) will be recognized in the income statement. As soon as the forecast transaction is realized (the underlying hedged item materializes), the amount recognized in the Other comprehensive income will be reclassified to the income statement. In case the hedged future transaction is a non-financial asset or liability, the gain or loss recognized in Other comprehensive income will be included in the cost of acquisition of the asset or liability.

The purpose of a hedge of a net investment is to reduce the foreign currency translation risk of an investment in a company whose functional currency is not the euro. Changes in fair value are recognized in Other comprehensive income (Translation reserve), and ineffectiveness will be recognized in the income statement. The amount recognized in Other comprehensive income will be reclassified to the income statement, upon divestment of the respective foreign subsidiary.

The purpose of a fair value hedge is to hedge the fair value of assets or liabilities reflected on the balance sheet. Changes of fair value in hedging instruments, as well as hedged items, will be recognized in the income statement.

Cash flow hedges

In 2021, DSM hedged USD 572 million (2020: USD 575 million) of its 2022 projected net cash flow in USD against the EUR by means of average-rate currency forward contracts at an average exchange rate of USD 1.20 per EUR for the four quarters of 2022. Each quarter, the relevant hedges for that quarter will be settled and recognized in the income statement. In 2021, DSM also hedged JPY 6,771 million (2020: JPY 7,213 million) of its 2022 projected net cash flow in JPY against the EUR by means of average-rate currency forward contracts at an average exchange rate of JPY 130.25 per EUR for the four quarters of 2022. DSM also hedged the projected CHF obligations against the EUR, namely CHF 375 million (2020: CHF 361 million) at an average exchange rate of CHF 1.08 per EUR. These hedges have fixed the exchange rate for part of the USD and JPY receipts and CHF payments in 2022. Cash flow hedge accounting is applied for these hedges. As a result of similar hedges concluded in 2020 for the year 2021, €16 million positive (2020: €3 million positive) was recognized in the 2021 operating profit of the segments involved in accordance with the realization of the expected cash flows. There was no ineffectiveness in relation to these hedges.

Net investment hedges

The partial hedging of the currency risk associated with the translation of DSM's CHF-denominated investments was continued for an amount of CHF 80 million (2020: CHF 135 million). There was no material ineffectiveness in relation to these hedges.

	Cash flow hedges Foreign currency risk		Net investment hedges Foreign exchange - denominated debt (CHF currency)	
	Inventory purchases	Other[1]	Assets	Liabilities
2020				
Nominal amount hedged item	28	223	-	125
Carrying amount assets	-	35	-	-
Carrying amount liabilities	-	-	-	-
Line item balance sheet	Derivatives	Derivatives	Derivatives	Derivatives
Change in the value of the hedging instrument	1	37	-	1
Costs of hedging recognized in OCI	1	40	-	-
Reclassified from hedging reserve to income statement	(9)	(3)	-	-
Line item income statement	Cost of sales	Sales	Finex[2]	Finex[2]
2021				
Nominal amount hedged item	23	184	-	77
Carrying amount assets	5	-	-	-
Carrying amount liabilities	-	(10)	-	-
Line item balance sheet	Derivatives	Derivatives	Derivatives	Derivatives
Change in the value of the hedging instrument	(5)	45	-	-
Costs of hedging recognized in OCI	(5)	29	-	1
Reclassified from hedging reserve to income statement	9	(16)	-	-
Line item income statement	Cost of sales	Sales	Finex[2]	Finex[2]

1 Forward contracts, sales, receivables and borrowings.

2 Financial income and expense.

For movements in Hedging or Translation reserve, see also Note 16 Equity.

Fair value of financial instruments

The following methods and assumptions were used to determine the fair value of financial instruments: cash, current investments, current receivables, current borrowings (excluding current portion of long-term instruments) and other current liabilities are stated at carrying amount, which approximates fair value in view of the short maturity of these instruments. The fair value of derivatives and long-term instruments are based on calculations, quoted market prices or quotes obtained from intermediaries.

The portfolio of derivatives consists of average-rate forward contracts that are valued against average foreign exchange forward rates obtained from Bloomberg and other derivatives that are valued using a discounted cash flow model, applicable market yield curves and foreign exchange spot rates. Inputs for the fair value calculations represent observable market data that are obtained from external sources that are deemed to be independent and reliable.

DSM uses the following hierarchy for determining the fair value of financial instruments:

- Level 1: quoted prices in active markets for identical assets or liabilities
- Level 2: other techniques for which all inputs that have a significant effect on the fair value are observable, either directly or indirectly
- Level 3: techniques that use inputs that have a significant effect on the fair value that are not based on observable market data
- The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy

Fair value of financial instruments

	Carrying amount					Fair Value			
	Amort. Cost	Fair value hedging instr.	FVTPL	FVOCI	Total	Level 1	Level 2	Level 3	Total
Assets 2020									
Non-current derivatives	-	10	51	-	**61**	-	61	-	**61**
Other participating interests	-	-	-	219	**219**	121	36	62	**219**
Non-current loans to associates and JVs	4	-	-	-	**4**	-	4	-	**4**
Other non-current receivables	85	-	-	-	**85**	-	-	85	**85**
Trade receivables	1,391	-	-	-	**1,391**	-	-	1,391	**1,391**
Other current receivables	60	-	-	-	**60**	-	-	60	**60**
Current derivatives	-	48	-	-	**48**	-	48	-	**48**
Current investments	43	-	-	-	**43**	-	-	43	**43**
Cash and cash equivalents	871	-	-	-	**871**	-	-	871	**871**
Liabilities 2020									
Non-current borrowings	(3,484)	-	-	-	**(3,484)**	(3,474)	-	(168)	**(3,642)**
Non-current derivatives	-	(1)	-	-	**(1)**	-	(1)	-	**(1)**
Other non-current liabilities	(163)	-	-	-	**(163)**	(141)	-	(22)	**(163)**
Current borrowings	(102)	-	-	-	**(102)**	(55)	-	(47)	**(102)**
Current derivatives	-	(13)	-	-	**(13)**	-	(13)	-	**(13)**
Trade payables	(1,218)	-	-	-	**(1,218)**	-	-	(1,218)	**(1,218)**
Other current liabilities	(508)	-	-	-	**(508)**	-	-	(508)	**(508)**
Assets 2021									
Non-current derivatives	-	1	47	-	**48**	-	48	-	**48**
Other participating interests	-	-	-	191	**191**	86	44	61	**191**
Non-current loans to associates and JVs	1	-	-	-	**1**	-	1	-	**1**
Other non-current receivables	31	-	-	-	**31**	-	-	31	**31**
Trade receivables	1,603	-	-	-	**1,603**	-	-	1,603	**1,603**
Other current receivables	32	-	-	-	**32**	-	-	32	**32**
Current derivatives	-	30	-	-	**30**	-	30	-	**30**
Current investments	489	-	-	-	**489**	-	-	489	**489**
Cash and cash equivalents	1,541	-	20	-	**1,561**	20	-	1,541	**1,561**
Liabilities 2021									
Non-current borrowings	(2,989)	-	-	-	**(2,989)**	(2,920)	-	(147)	**(3,067)**
Non-current derivatives	-	(9)	-	-	**(9)**	-	(9)	-	**(9)**
Other non-current liabilities	(137)	-	(146)	-	**(283)**	(137)	-	(146)	**(283)**
Current borrowings	(104)	-	-	-	**(104)**	(56)	-	(48)	**(104)**
Current derivatives	-	(40)	-	-	**(40)**	-	(40)	-	**(40)**
Trade payables	(1,571)	-	-	-	**(1,571)**	-	-	(1,571)	**(1,571)**
Other current liabilities	(540)	-	-	-	**(540)**	-	-	(540)	**(540)**

During the year there were no material transfers between individual levels of the fair value hierarchy.

Notional value of derivative financial instruments

	2021			2020		
	Non-current	Current	**Total**	Non-current	Current	Total
Cross-currency interest rate swaps	(170)	(90)	**(260)**	(201)	(152)	(353)
Forward exchange contracts, currency options, currency swaps	(3)	(2,019)	**(2,022)**	(2)	(1,691)	(1,693)
Other derivatives	39	16	**55**	46	(28)	18
Total	**(134)**	**(2,093)**	**(2,227)**	**(157)**	**(1,871)**	**(2,028)**

24 Post-employment benefits

The group operates a number of defined benefit plans and defined contribution plans throughout the world, the assets of which are generally held in separately administered funds. The pension plans are generally funded by payments from employees and from the relevant group companies. The group also provides certain additional healthcare benefits to retired employees in the US.

Post-employment benefits are employee benefits (other than termination benefits and short-term employee benefits) that are payable after the completion of employment. The defined benefit obligation is valued using the projected unit credit method as prescribed under IAS 19 'Employee Benefits'. Post-employment benefit accounting is intended to reflect the recognition of post-employment benefits over the employee's approximate service period, based on the terms of the plans and the investment and funding. The accounting requires management to make assumptions regarding variables such as discount rate, future salary increases, life expectancy, and future healthcare costs. Management consults with external actuaries regarding these assumptions at least annually for significant plans.

Changes in these key assumptions can have a significant impact on the projected defined benefit obligations, funding requirements and periodic costs incurred.

The charges for pension costs recognized in the income statement (Note 5 Net sales and costs (continuing operations)) relate to the following.

Pension costs

	2021	2020
Defined benefit plans:		
- Current service costs pension plans	35	36
- Other post-employment benefits	3	3
Defined contribution plans	78	79
Total pension costs included in employee benefit costs	116	118
- Pension costs included in Other operating (income) / expense	(9)	-
Total in operating profit, continuing operations	107	118
Pension costs included in Financial income and expense	2	4
Total continuing operations	109	122
Discontinued operations	3	14
Total	112	136
Of which:		
- Defined contribution plans	81	92
- Defined benefit plans	31	44

For 2022, costs for the defined benefit plans relating to pensions are expected to be €40 million (2021: €42 million).

Changes in Employee benefit net liabilities recognized in the balance sheet are shown in the following overview.

Employee benefit net liabilities

	2021	2020
Balance at 1 January	454	454
Changes:		
- Balance of actuarial (gains)/losses	(153)	23
- Employee benefit costs	30	45
- Contributions by employer	(66)	(54)
- Acquisition and disposals	-	4
- Exchange differences	(1)	(2)
- Other	5	-
- Reclassification from/to held for sale	-	(16)
Total changes	(185)	-
Balance at 31 December	269	454

The Employee benefit net liabilities of €269 million (2020: €454 million) consist of €251 million related to pensions (2020: €434 million), €5 million related to healthcare and other costs (2020: €5 million) and €13 million related to other post-employment benefits (2020: €15 million). See also the table below.

Net assets/liabilities

	2021	2020
Major plans:		
Present value of funded obligations	(1,810)	(1,756)
Fair value of plan assets	1,887	1,676
Net	77	(80)
Present value of unfunded obligations	(325)	(354)
Net (liabilities) / net assets major plans	(248)	(434)
Net (liabilities) / net assets other plans	(21)	(20)
Total (net liabilities) / net assets	(269)	(454)
Of which:	-	
Liabilities (Employee benefit liabilities)	(344)	(456)
Assets (Prepaid pension costs)	75	2

Pensions

The DSM group companies have various pension plans, which are geared to the local regulations and practices in the countries in which they operate. As these plans are designed to comply with the statutory framework, tax legislation, local customs and economic situation of the countries concerned, it follows that the nature of the plans varies from country to country. The plans are based on local legal and contractual obligations.

DSM's current policy is to offer defined contribution retirement benefit plans to new employees wherever possible. However, DSM still has a (small) number of defined benefit pension and healthcare schemes from the past or in countries where legislation does not allow us to offer a defined contribution scheme. Generally, these schemes have been funded through external trusts or foundations, where DSM faces the potential risk of funding shortfalls. The most significant defined benefit schemes are:

- Pension Plan at DSM Nutritional Products AG in Switzerland (DNP AG)
- DSM UK Pension Scheme in the UK
- Consolidated Pension Plan of DSM North America, Inc. in the US
- Pension Plan at DSM Nutritional Products GmbH in Germany (DNP GmbH)

For each plan, the following characteristics are relevant:

DNP AG Pension Plan in Switzerland

The DNP AG Pension Plan is a typical Swiss Cash Balance plan. For accounting purposes, this plan is qualified as a defined benefit plan. It is a contribution-based plan. There is no promise of indexation for on-going pensions. The Swiss state minimal requirements for occupational benefit plans have however to be respected; the Minimum Guaranteed Interest Return that needs to be applied on the cash balance accounts according to the Swiss BVG legislation was 1.0% for 2021 (2020: 1.0%). The actual return that was granted to the cash balance accounts in 2021 was 4.5% (4.0% in 2020). There is also a minimal conversion rate applicable. The weighted average duration of the defined benefit obligation is 14.9 years (2020: 16.4 years) which could be seen as an indication of the maturity profile of the scheme.

The pension plan is managed and controlled by a DSM company pension fund. The Board of Trustees consists of representatives of the employer and the employees who have an independent role. The plan assets are collectively invested (no individual investment choice). The current (estimated) funding level, based on local standards, is 124% (2020: 117%), which is above the legally required minimum funding level and also above the long-term buffer target.

DSM UK Pension Scheme

The DSM UK Pension Scheme was closed as of 30 September 2016 for all pension accruals. An unconditional indexation policy is applicable for the vested pension rights. The weighted average duration of the defined benefit obligation is 18.9 years (2020: 19.8 years), which could be seen as an indication of the maturity profile of the scheme.

The pension plan is managed and controlled by a DSM company pension fund. The Board of Trustees consists of representatives of the employer and the employees who have an independent role. There are two company guarantees in place: (1) a guarantee from DNP AG (capped at GBP 14 million) related to the 2012 valuation, and (2) a guarantee from Royal DSM (capped at GBP 11 million) related to arrangements with respect to former UK divestments. There is a long-term de-risking strategy for the DSM UK Pension Scheme in place with the objective to align the company's intentions and the Trustees responsibility with respect to this plan. The current funding level, based on local standards, is estimated at 101% (2020: 99%).

Consolidated Plan in the US

The Consolidated Plan in the US has been closed to new entrants since 2014. As of 31 December 2016, the plan was closed for pension accrual of the non-unionized employees and as a result of the DRF divestment in 2021, it was fully frozen for all unionized employees as well.

There is no indexation applicable for the vested pension rights. The weighted average duration of the defined obligations is 11.8 years (2020: 12.5 years), which could be seen as an indication of the maturity profile of the scheme.

The pension plan is managed and controlled by a DSM company pension fund. The Board of Trustees consists of representatives of the employer and the employees, who have an independent role.

The internal funding policy of this plan is based on IFRS valuation. This implies a stricter funding policy than the minimum requirements on local funding. The current IFRS funding level is 107% (2020: 101%) and the funding on local standards (Pension Protection Act) will be substantially higher. The minimum required funding level on local standards is 80% on the basis of this Act, so this plan is well funded.

DNP GmbH Pension Plan in Germany

The DNP GmbH Pension Plan in Germany has been closed to new entrants as of 31 December 2008. The accrual is still applicable for employees who have been participating in the plan since 2008. The pension plan is a final-pay pension plan (averaged over the last 12 months prior to retirement) and service-related benefit. The liability is on the balance sheet of DSM Nutritional Products GmbH. No assets are allocated to this liability. All reimbursements will be paid out by the local company. The weighted average duration of the defined benefit obligation is 14.5 years (2020: 14.9 years), which could be seen as an indication of the maturity profile of the scheme.

The most important unfunded plans are in Germany, for which the associated liability amounts to €316 million (2020: €345 million).

The changes in the present value of the defined benefit obligations and in the fair value of plan assets of the major plans are listed below.

Present value of defined benefit obligations

	2021	2020
Balance at 1 January	2,110	2,079
Changes:	-	
- Service costs	35	36
- Interest costs	13	18
- Contributions	16	15
- Actuarial (gains)/losses	(52)	114
- Past service costs	(11)	-
- Exchange differences	94	(30)
- Disbursements	(72)	(77)
- Settlements	-	(31)
- Reclassification to held for sale	-	(16)
- Other	2	2
Total changes	25	31
Balance at 31 December	2,135	2,110

Fair value of plan assets

	2021	2020
Balance at 1 January	1,676	1,644
Changes:	-	
- Interest income on plan assets	11	15
- Actuarial gains/(losses)	101	89
Actual return on plan assets	112	104
- Contributions by employer	47	41
- Contributions by employees	16	15
- Disbursement	(60)	(63)
- Acquisition / Divestment	(1)	-
- Settlements	-	(31)
- Exchange differences	97	(30)
- Transfer to contribution plan	-	(4)
Total changes	211	32
Balance at 31 December	1,887	1,676

The fair value of the plan assets consists of 96% of quoted assets (2020: 96%).

The actuarial gains/losses as included in the previous tables can be specified as follows.

Remeasurement effects as included in Other comprehensive income

	2021	2020
Defined benefit obligation major pension plans		
Actuarial (gain)/loss due to experience	68	9
Actuarial (gain)/loss due to demographic assumption changes	(62)	3
Actuarial (gain)/loss due to financial assumption changes	(58)	102
Total	**(52)**	**114**
Plan assets major pension plans		
Change in irrecoverable surplus other than interest	-	(2)
Return on plan assets (greater) / less than discount rate	(101)	(89)
Total	**(101)**	**(91)**
Actuarial (gain)/loss major plans	**(153)**	**23**
Actuarial (gain)/loss other plans	-	-
Total actuarial (gain)/loss	**(153)**	**23**

The major categories of pension-plan assets as a percentage of total plan assets are as follows.

Pension-plan assets by category

	2021	2020
Bonds[1]	46%	45%
Equities[1]	26%	29%
Property funds	20%	17%
Other	8%	9%

1 With quoted market price in active market

The pension-plan assets include neither ordinary DSM shares nor property occupied by DSM.

In 2022, DSM is expected to contribute €34 million (actual 2021: €47 million) to its major defined benefit plans.

The main actuarial assumptions for the year (weighted averages) are:

Actuarial assumptions for major plans outside the Netherlands

	2021	2020
Discount rate	0.85%	0.53%
Price inflation	1.49%	1.42%
Salary increase	2.06%	2.07%
Pension increase	0.84-3.15%	0.75-2.50%

Year-end amounts for the current and previous periods are as follows.

Major defined benefit plans per year

	2021	2020	2019	2018	2017
Defined benefit obligations	(2,135)	(2,110)	(2,079)	(1,808)	(1,675)
Plan assets	1,887	1,676	1,644	1,370	1,301
Funded status of asset/(liability)	**(248)**	**(434)**	**(435)**	**(438)**	**(374)**
Experience adjustments on plan assets, gain/(loss)	101	89	192	(94)	115
Experience adjustments on plan liabilities, gain/(loss)	(68)	(9)	(36)	(35)	(24)
Gain/(loss) on liabilities due to changes in assumptions	120	(105)	(180)	52	(21)

Sensitivities of significant actuarial assumptions

The discount rate, the future increase in wages and salaries and the pension increase rate were identified as significant actuarial assumptions. The following impacts on the defined benefit obligation are to be expected.

- A 0.25% increase/decrease in the discount rate would lead to a decrease/increase of 3.5% (2020: 3.9%) in the defined benefit obligation
- A 0.25% increase/decrease in the expected increase in salaries/wages would lead to an increase/decrease of 0.3% (2020: 0.3%) in the defined benefit obligation
- A 0.25% increase/decrease in the expected rate of pension increase would lead to an increase/decrease of less than 1.0% (2020: 1.0%) in the defined benefit obligation

The sensitivity analysis is based on realistically possible changes as at the end of the reporting year. Each change in a significant actuarial assumption was analyzed separately as part of the test. Interdependencies were not taken into account.

Healthcare and other costs

In some countries, particularly the US, group companies provide retired employees and their surviving dependents with post-employment benefits other than pensions, mainly allowances for healthcare expenses and life-insurance premiums. Some of these are unfunded; in these cases, approved expense claims are reimbursed out of the financial resources of the group companies concerned. These plans are not sufficiently material to warrant the individual disclosures required by IAS 19.

25 Net debt

The development of the components of net debt is as follows.

	Cash and cash equivalents	Current investments	Non-current borrowings	Current borrowings	Credit institutions	Derivatives	Total
Balance at 1 January 2020	800	688	(2,464)	(57)	(132)	21	(1,144)
Change from operating activities	1,494	-	(8)	-	-	90	1,576
Change from investing activities	(1,482)	(646)	(125)	(63)	(17)	-	(2,333)
Reclassification from non-current to current	-	-	142	(142)	-	-	-
Transfers	705	-	(1,011)	211	95	-	-
Dividend	(289)	-	-	-	-	-	(289)
Interest	(54)	-	-	-	-	-	(54)
Proceeds from reissued shares	63	-	-	-	-	-	63
New/unwinding leases	-	-	(34)	-	-	-	(34)
Repurchase of shares	(309)	-	-	-	-	-	(309)
Derivatives	-	-	-	-	-	-	-
Other	(33)	-	-	-	-	-	(33)
Change from financing activities	83	-	(903)	69	95	-	(656)
Exchange differences	(24)	1	14	-	1	(16)	(24)
Reclassification to held for sale	-	-	2	2	-	-	4
Total changes	71	(645)	(1,020)	8	79	74	(1,433)
Balance at 31 December 2020	871	43	(3,484)	(49)	(53)	95	(2,577)
Change from operating activities	1,427	-	(7)	-	-	(66)	1,354
Change from investing activities	208	445	(3)	(2)	24	-	672
Reclassification from non-current to current	-	-	516	(516)	-	-	-
Transfers	(522)	-	24	506	(12)	4	-
Dividend	(266)	-	-	-	-	-	(266)
Interest	(65)	-	-	-	-	-	(65)
Proceeds from reissued shares	34	-	-	-	-	-	34
New/unwinding leases	-	-	(19)	-	-	-	(19)
Repurchase of shares	(165)	-	-	-	-	-	(165)
Derivatives	-	-	-	-	-	-	-
Other	-	-	-	-	-	(4)	(4)
Change from financing activities	(984)	-	521	(10)	(12)	-	(485)
Exchange differences	39	1	(16)	-	(2)	-	22
Total changes	690	446	495	(12)	10	(66)	1,563
Balance at 31 December 2021	1,561	489	(2,989)	(61)	(43)	29	(1,014)

In 2021, the gearing (net debt / equity plus net debt) was 9.7% (in 2020: 25.6%)

26 Notes to the cash flow statement

The cash flow statement provides an explanation of the changes in cash and cash equivalents. It is prepared on the basis of a comparison of the balance sheets at 1 January and 31 December. Changes that do not involve cash flows, such as changes in exchange rates, amortization, depreciation, impairment losses and transfers to other balance sheet items, are eliminated.

Changes in working capital due to the acquisition or disposal of consolidated companies are included under Investing activities.

The Consolidated cash flow statement includes an analysis of all cash flows in total, therefore including both continuing and discontinued operations. For the amounts related to discontinued operations split by activities and a reconciliation of results from continuing operations to total, see Note 3 Change in the scope of the consolidation.

Most of the changes in the cash flow statement can be traced back to the detailed statements of changes for the balance sheet items concerned. For those balance sheet items for which no detailed statement of changes is included, the table below shows the link between the change according to the balance sheet and the change according to the cash flow statement.

Change in operating working capital

	2021	2020
Operating working capital		
Balance at 1 January	2,052	2,266
Balance at 31 December	2,329	2,052
Balance sheet change	277	(214)
Adjustments:		
- Exchange differences	(108)	146
- Changes in consolidation (including acquisitions and disposals)	99	(96)
- Transfers/non-cash value adjustments	(85)	156
Total change in operating working capital according to the cash flow statement	183	(8)

In 2021, the operating working capital continuing operations was €2,329 million (2020: €2,052 million), which amounts to 24.1% of annualized fourth-quarter net sales (2020: 24.6% continuing operations).

The disposal of subsidiaries, businesses and associates of €1,791 million consists of the cash impact of the divestment of Resins & Functional Materials (RFM) for €1,444 million, the sale of DSM's share in AOC for €337 million, various earn-out payment receipts of €46 million and other, including costs of €3 million. Next to that, the divestment of RFM resulted in a tax expense of €70 million, of which €33 million was paid in 2021.

27 Share-based compensation

The Royal DSM Restricted- and Performance Share Unit Plan provides rules for the grant of Restricted Share Units (RSU) and Performance Share Units (PSU) to eligible employees. The effective date of any grant of share units is the last trading day at the Amsterdam Stock Exchange in March.

The number of share units to be granted is based on the face value of the DSM share. The grant value (depending on job level) to eligible employees will be divided by the average share price in January. As a result, the number of share units to be granted annually will fluctuate with the share price development. The grant concerns the maximum number of Restricted Share Units (RSUs) and Performance Share Units (PSUs) that may vest.

RSUs and PSUs are subject to a vesting period of 3 years starting at the grant date. Vesting of RSUs is subject to continued employment until the vesting date ('time vesting'). In addition, vesting of PSUs is also subject to the achievement of predefined performance targets at the end of the vesting period. The PSUs granted in 2021 are subject to the realization of four equally weighted goals:

- Relative Total Shareholder Return (TSR) performance versus a peer group
- Return on Capital Employed (ROCE) growth
- Energy Efficiency Improvement (EEI)
- Greenhouse Gas Emissions (GHGE) reduction

Non-vested share units will be forfeited. If employment is terminated prior to the vesting date, specific rules regarding vesting and forfeitures apply.

Prior to 2017, stock options were granted to eligible executives. Stock options have a term of 8 years and are subject to a vesting period of 3 years. All outstanding stock options are vested.

Share units and stock options are settled by delivery of DSM shares.

Overview of stock options

Year of grant	Outstanding at 31 Dec. 2020	In 2021 Exercised	Average price (€)	Forfeited/ expired	Outstanding at 31 Dec. 2021	Fair value on grant date (€)	Exercise price (€)	Expiry date
2013	85,250	(85,250)	149.54	-	-	9.23	48.91	7 May 2021
2014	137,625	(85,585)	177.30	(2,500)	49,540	10.66	52.00	9 May 2022
2015	312,400	(65,050)	170.47	(2,500)	244,850	9.89	50.98	5 May 2023
2016	531,645	(107,945)	173.20	(2,500)	421,200	9.36	52.57	3 May 2024
2021 Total	**1,066,920**	**(343,830)**	**167.84**	**(7,500)**	**715,590**			
Of which vested	1,066,920				715,590			
	at 31 Dec. 2019				at 31 Dec. 2020			
2020 Total	1,642,380	(575,460)	120.94	-	1,066,920			
Of which vested	1,642,380				1,066,920			

Overview of share units[1]

Year of issue	Outstanding at 31 Dec. 2020	Adjustment PSUs to at-target grant	In 2021 Granted	Vested	Forfeited/ expired[2]	Outstanding at 31 Dec. 2021	Share price at date of grant (€)	Expiry date
2018	203,139	(30,999)	-	(168,727)	(3,413)	-	80.04	31 Mar 2021
2019	267,934	(79,211)	-	(20,859)	(10,286)	157,578	97.74	31 Mar 2022
2020	219,278	(65,565)	-	(16,293)	(9,783)	127,637	103.50	31 Mar 2023
2021	-	-	114,894	(1,758)	(3,941)	109,195	144.30	31 Mar 2024
2021 Total	**690,351**	**(175,775)**	**114,894**	**(207,637)**	**(27,423)**	**394,410**		
	at 31 Dec. 2019					at 31 Dec. 2020		
2020 Total	885,643	-	232,714	(336,097)	(91,909)	690,351		

1 This table also forms part of the Remuneration report 2021 as included in the Supervisory Board Report.

2 Restricted and Performance Share Units may partly vest upon termination of employment in connection with, for example, divestments, retirement or early retirement.

Whereas the grant of PSUs to members of the Managing Board and the Executive Committee is based on the maximum number to vest, the grant to other eligible employees is – as of 2021 – based on the 'at-target' grant level (in previous years this was the 'maximum number' that could vest). An 'at-target' grant level includes RSUs as well as PSUs. In the future this may, upon vesting and depending on the achievement of underlying goals, result in a performance correction, i.e., the forfeiture of outstanding PSUs (if performance goals are not or only partly achieved) or in an additional number of PSUs to vest (if performance goals are overachieved).

The change in plan (the switch to an 'at-target' grant) was applied retroactively for the grants made in previous years. As a result of this, the table above includes a one-off correction of outstanding PSUs for grants in previous years. For 2018 the number in the respective column represents the net balance of the correction of the number of outstanding share units resulting from the shift to an 'at-target' grant (-59,233 PSUs) and the impact of a performance correction (28,234) as the achievement of the performance goals exceeded target. For 2019 and 2020 the balance only contains the correction following the shift to an 'at-target' grant. The shift towards a grant on 'at-target' level did not impact the valuation of the outstanding share units nor the share-based compensation in the income statement.

Certain employees in the Netherlands are entitled to employee stock options, to be granted on the first day on which the DSM stock is quoted ex-dividend following the Annual General Meeting of Shareholders. The opening price of the DSM stock on that day is the exercise price of such stock options. Employee stock options can immediately be exercised and have a term of five years.

Overview of stock options for employees

Year of grant	Outstanding at 31 Dec. 2020	In 2021 Granted	Exercised	Average price (€)	Forfeited/ expired	Outstanding at 31 Dec. 2021	Fair value on grant date (€)	Exercise price (€)	Exercise period until
2016	22,045	-	(21,820)	147.31	(225)	-	4.38	52.57	May 2021
2017	47,450	-	(18,455)	158.76	(250)	28,745	6.14	67.33	May 2022
2018	96,335	-	(34,030)	159.85	(750)	61,555	8.50	85.00	May 2023
2019	163,400	-	(59,835)	160.81	(1,050)	102,515	8.88	98.00	May 2024
2020	117,890	-	(44,970)	160.75	(1,380)	71,540	10.26	112.00	May 2025
2021 Total	**447,120**	**-**	**(179,110)**	**158.75**	**(3,655)**	**264,355**			
	at 31 Dec. 2019					at 31 Dec. 2020			
2020 Total	637,810	190,630	(367,525)	130.61	(13,795)	447,120			

Measurement of fair value

The costs of share units are measured by reference to the fair value of the DSM share at the date on which the share units are granted, ex-dividend as the share units do not accumulate dividend during the three-year vesting period.

The costs of option plans are measured by reference to the fair value of the options at the date on which the options are granted. The fair value is determined using the Black-Scholes model, taking into account market conditions linked to the price of the DSM share. Stock-price volatility is determined on the basis of historical volatilities of the DSM share price measured each month over a period equal to the expected option life. The costs of these options are recognized in the income statement (Employee benefit costs).

Assumptions determining fair value

The following assumptions were used to determine the fair value at grant date.

Plan assumptions

	2021	2020
Share units		
Risk-free rate	-0.60%	-0.69%
Expected share life in years	3	3
Nominal share life in years	3	3
Share price in €	144.30	103.50
Expected dividend in €	7.20	7.20
Fair value of share granted in €	137.10	96.30
Employee options		
Risk-free rate	-	-0.74%
Expected option life in years	-	2.5
Nominal option life in years	-	5
Share price in €	-	112.10
Exercise price in €	-	112.10
Volatility	-	20.0%
Expected dividend	-	2.14%
Fair value of option granted in €	-	10.26

An amount of €22 million is included in the costs for wages and salaries for share-based compensation (2020: €29 million). The following table specifies the share-based compensation.

Share-based compensation

	2021	2020
Employee stock options	-	2
Other stock options	2	-
Share units	16	19
Performance shares	4	8
Total expense	**22**	**29**

28 Related parties

Koninklijke DSM N.V. is the group holding company that is listed on the Euronext Amsterdam stock exchange. The financial statements of the company are included in the section Parent company financial statements.

In the ordinary course of business, DSM buys and sells goods and services from/to various related parties in which DSM has significant influence. Transactions are conducted under terms and conditions that are equivalent to those that apply to arm's length transactions.

Transactions and relationships with related parties are reported in the table below.

Transactions with related parties

	Associates and joint ventures	
	2021	2020
Sales to	13	9
Purchases from	87	51
Loans to	1	4
Receivables from	15	44
Payables to	7	5
Interest from	1	1
Commitments to	4	3

Transactions with joint ventures are immaterial.

DSM may issue guarantees as credit enhancement of associates to acquire bank facilities for these associates. DSM has provided guarantees to third parties for debts of associates and to a third party (a former associate) for an amount of €81 million (2020: €78 million).

Other related-parties disclosures relate entirely to key management of DSM, being represented by the company's Managing Board, Executive Committee and the Supervisory Board. For further details about their remuneration, see Note 12 Remuneration of Managing Board and Supervisory Board to the Parent company financial statements.

29 Service fees paid to external auditors

The service fees recognized in the financial statements 2021 for the services of KPMG amounted to €5.8 million (2020: €5.7 million). The amounts per service category are shown in the following table.

	Total service fee		Of which	
	KPMG 2021	KPMG 2020	**KPMG NL 2021**	KPMG NL 2020
Audit of the Group financial statements	4.5	4.5	3.0	3.0
Audit of other (statutory) financial statements	0.7	0.6	0.1	-
Other assurance services	0.6	0.6	0.6	0.6
Total assurance services	**5.8**	**5.7**	**3.7**	**3.6**

The service fees mentioned in the table for the audit of the financial statements 2021 (2020) relate to the total fees for the audit of the financial statements 2021 (2020), irrespective of whether the activities have been performed during the financial year 2021 (2020).

KPMG did not provide any non-assurance services in 2021 (2020: similar). The other assurance services rendered by KPMG in 2021 include assurance engagements on non-financial information, and on internal controls of DSM Pension Services, assurance engagements on government grants and regulatory filings, as well as agreed-upon procedures on certain information for the Remuneration Committee of Royal DSM and the pension fund and their external auditor.

30 Events after the balance sheet date

Following DSM's announcement concerning its accelerated strategic journey to become a company focused on Health, Nutrition & Bioscience on 14 September 2021, DSM changed its organizational structure with effect from 1 January 2022. This change resulted in three new Business Groups: Food & Beverage (F&B), Health, Nutrition & Care (HNC), and Animal Nutrition & Health (ANH).

Parent company financial statements

Balance sheet at 31 December of Koninklijke DSM N.V. before profit appropriation

x € million	Notes	2021	2020
Assets			
Intangible assets	2	464	825
Financial assets	3	13,789	12,016
Deferred tax assets	4	97	132
Other deferred items		2	2
Non-current assets		14,352	12,975
Receivables	5	77	63
Cash and cash equivalents		1	-
Current assets		78	63
Total		14,430	13,038
Shareholders' equity and liabilities			
Share capital	6	328	338
Share premium	6	471	489
Treasury shares	6	(177)	(976)
Legal reserves	6	460	(14)
Other reserves, incl. retained earnings	6	6,700	7,196
Undistributed results:	6		
- Net profit for the year	6	1,676	506
- Less: interim dividend	6	(140)	(140)
Shareholders' equity	6	9,318	7,399
Borrowings	7	2,739	3,237
Other non-current liabilities		8	8
Non-current liabilities		2,747	3,245
Current liabilities			
Other current liabilities	8	2,365	2,394
Current liabilities		2,365	2,394
Total		14,430	13,038

The accompanying notes are an integral part of these parent company financial statements.

Income statement of Koninklijke DSM N.V.

x € million	Notes	2021	2020
Other income	1	18	20
Cost of outsourced work and other external costs		(21)	(17)
Wages and salaries	10	(5)	(9)
Other movements in the value of intangible assets		(5)	-
Other operating expense		(1)	(2)
Total operating expenses		(32)	(28)
Operating profit		(14)	(8)
Financial expense	11	(106)	(95)
Profit before income tax		(120)	(103)
Income tax	4	(3)	24
Share of the profit of subsidiaries	3	1,784	585
Profit after income tax		1,661	506
Income from receivables attributable to non-current assets and from investments		15	-
Net profit available to equity holders of Koninklijke DSM N.V.		1,676	506

Notes to the parent company financial statements

1 General

Unless stated otherwise, all amounts are in € million.

Summary of the accounting policies

These separate financial statements have been prepared in accordance with Title 9, Book 2 of the Dutch Civil Code. The accounting policies used are the same as those used in the consolidated EU-IFRS financial statements, in accordance with the provisions of article 362-8 of Book 2 of the Dutch Civil Code.

In these separate financial statements, investments in subsidiaries are accounted for using the net asset value, with separate presentation of the goodwill component under intangible fixed assets. Results on transactions involving the transfer of assets and liabilities between the Company and its participating interests and mutually between participating interests themselves, are eliminated to the extent that they can be considered as not realized. For an appropriate interpretation of these statutory financial statements, the separate financial statements should be read in conjunction with the consolidated financial statements.

Participating interests with a negative net asset value are valued at nil. This measurement also covers any receivables provided to the participating interests that are, in substance, an extension of the net investment. In particular, this relates to loans for which settlement is neither planned nor likely to occur in the foreseeable future. A share in the profits of the participating interest in subsequent years will only be recognised if and to the extent that the cumulative unrecognised share of loss has been absorbed. If the Company fully or partially guarantees the debts of the relevant participating interest, or if has the constructive obligation to enable the participating interest to pay its debts (for its share therein), then a provision is recognised accordingly to the amount of the estimated payments by the Company on behalf of the participating interest.

Information on the use of financial instruments and on related risks for the group is provided in Note 23 of the consolidated financial statements. The Company makes use of the option to eliminate intragroup expected credit losses against the book value of loans and receivables from the Company to participating interests, instead of elimination against the equity value / net asset value of the participating interests.

Other income consists mainly of the charge out of the parent company related corporate overhead and services to the group companies, which is fully realized in the Netherlands.

Statutory and fiscal seat

The statutory seat of Koninklijke DSM N.V. is Het Overloon 1, Heerlen (Netherlands). A list of Koninklijke DSM N.V.'s participations has been filed with the Chamber of Commerce (Netherlands) and is available from the company upon request, as well as on the company website. DSM is registered in the Dutch Commercial Register under number 14022069.

The company forms a fiscal unity for corporate income tax and VAT purposes together with the group companies in the Netherlands. Each of the companies recognizes the portion of corporate income tax that the relevant company would owe as an independent tax payer, taking into account the tax liabilities applicable to the company.

Finalization PPA Erber

In the reporting year, the Purchase Price Allocation (PPA) related to the Erber acquisition in 2020 was finalized, resulting in a decrease of the goodwill amount by -€46 million, representing 90% of the total goodwill adjustment of -€51 million, an increase of share in subsidiaries by €40 million and a decrease of other current liabilities of -€6 million. The comparative information for the reference year has been revised for these PPA adjustments. As the impact on the profit and loss account is negligible, no comparative information has been adjusted, see Note 3 Change in the scope of the consolidation to the 'Consolidated financial statements'.

2 Intangible assets

The carrying amount of intangible assets comprises goodwill on the acquisition of the Erber Group in 2020 (€423 million), Crina in 2006 (€9 million) and Pentapharm in 2007 (€32 million). The disposal of subsidiaries relates to the goodwill on NeoResins (€358 million), that was derecognized as part of the divestment of the Resins & Functional Materials (together ‘RFM’) and associated businesses, see Note 3 Change in the scope of the consolidation to the 'Consolidated financial statements'. For full information on these assets including the discussion of the related impairment tests, see Note 8 Intangible assets to the ‘Consolidated financial statements’.

Intangible assets of Koninklijke DSM N.V.

	Goodwill	Under construction	Other	Total
Balance at 1 January 2020				
Cost	402	4	88	494
Amortization and impairment losses	-	-	(66)	(66)
Carrying amount	**402**	**4**	**22**	**428**
Changes in carrying amount:				
- Acquisition	423	-	-	423
- Intragroup transfer	-	(4)	(22)	(26)
Balance at 31 December 2020				
Cost	825	-	-	825
Amortization and impairment losses	-	-	-	-
Carrying amount	**825**	**-**	**-**	**825**
Changes in carrying amount:				
- Exchange rate difference	2	-	-	2
- Disposal subsidiaries	(358)	-	-	(358)
- Impairment	(5)	-	-	(5)
Balance at 31 December 2021	464	-	-	464
Cost	469	-	-	469
Amortization and impairment losses	5	-	-	5
Carrying amount	**464**	**-**	**-**	**464**

3 Financial assets

	Share in Subsidiaries	Other participating interests	Receivables	Total
Balance at 1 January 2020	10,686	36	25	10,747
Changes:				
- Share in profit	585	-	-	585
- Charged to income statement	-	-		-
- Dividend received	(227)	-	-	(227)
- Capital payments	715	-	-	715
- Acquisition of subsidiaries	432	-	-	432
- Net actuarial gains/(losses)	(19)	-	-	(19)
- Change in Fair value reserve	93	5	-	98
- Change in Hedging reserve	31	-	-	31
- Exchange differences	(453)	-	-	(453)
- Intra-group transfers	130	-	-	130
- Other	(20)	-	(3)	(23)
Balance at 31 December 2020	11,953	41	22	12,016
Changes:				
- Share in profit	1,784	-	-	1,784
- Dividend received	(385)	-	-	(385)
- Disposal of subsidiaries	(239)	-	-	(239)
- Net actuarial gains/(losses)	132	-	-	132
- Change in Fair value reserve	81	(36)	-	45
- Change in Hedging reserve	(33)	-	-	(33)
- Exchange differences	479	-	-	479
- Intra-group transfers	32	-	-	32
- Other	(20)	-	(22)	(42)
Balance at 31 December 2021	13,784	5	-	13,789

The disposal of subsidiaries relates to the divestment of the RFM business. The change in the fair value for Other participating interests relates to the fair value adjustment of DSM's share in BCPE Max Dutch JVCo B.V. The decrease in receivables relates to collected earn-out receivables.

4 Deferred tax assets

The deferred tax asset of €97 million relates to net operating losses and temporary differences in the Dutch fiscal unity, of which €56 million is recoverable within 1 year. The decrease of the deferred tax asset in 2021 relates mainly to reversal of temporary differences and uncertainties under local law. The decrease in the effective tax rate from 23.3% in 2020 to 2.5% in 2021 was mainly due to tax exempt income related to the divestment of the RFM business, partly compensated by non-deductible costs and uncertainties under local law.

5 Receivables

	2021	2020
Receivables from subsidiaries	58	49
Other receivables	19	14
Total	77	63

The carrying values of the receivables are a reasonable approximation of their respective fair values, given the short maturities of the positions and the fact that allowances for doubtful debts have been recognized, if necessary. All receivables have an estimated maturity shorter than one year.

The Receivables from subsidiaries of €58 million (2020: €49 million) mainly include receivables relating to the Dutch fiscal unity.

6 Shareholders' equity

x € million	Share capital	Share prem.	Treas. shares	Legal reserves					Other reserves			Undistri buted results	Total share-holder equity
				Trans-lation res.	Capital dev. costs	Part. inte-rest	Reval. reserve	Hedg. reserve	Fair value res.	Share-based comp.	Ret. Earn.		
Balance at 31 December 2019	338	489	(905)	162	267	116	5	(122)	-	51	6,711	619	7,731
Added to other reserves	-	-	-	-	-	-	-	-	-	-	619	(619)	-
Net profit	-	-	-	-	-	-	-	-	-	-	-	506	506
Dividend	-	-	-	-	-	-	-	-	-	-	(283)	(140)	(423)
Reissued shares	-	-	238	-	-	-	-	-	-	-	(32)	-	206
Acquisition of NCI without a change in control	-	-	-	-	-	-	-	-	-	-	(22)	-	(22)
Repurchase of shares	-	-	(309)	-	-	-	-	-	-	-	-	-	(309)
Fair value changes of derivatives	-	-	-	-	-	-	-	40	-	-	-	-	40
Release to income statement	-	-	-	-	-	-	-	20	-	-	-	-	20
Fair value changes of other financial assets	-	-	-	-	-	-	-	-	106	-	-	-	106
Transfer fair value reserve	-	-	-	-	-	-	(5)	-	5	-	-	-	-
Exchange differences	-	-	-	(451)	-	-	-	-	-	-	-	-	(451)
Options and performance shares granted	-	-	-	-	-	-	-	-	-	29	-	-	29
Options and performance shares exercised/canceled	-	-	-	-	-	-	-	-	-	(39)	39	-	-
Transfer to retained earnings	-	-	-	-	(44)	4	-	-	(30)	-	70	-	-
Changes in joint ventures and associates	-	-	-	(2)	-	-	-	-	-	-	-	-	(2)
Income tax	-	-	-	2	-	-	-	(6)	(8)	-	-	-	(12)
Remeasurements of defined benefit pension plans	-	-	-	-	-	-	-	-	-	-	(20)	-	(20)
Balance at 31 December 2020	338	489	(976)	(289)	223	120	-	(68)	73	41	7,082	366	7,399
Added to other reserves	-	-	-	-	-	-	-	-	-	-	366	(366)	-
Net profit	-	-	-	-	-	-	-	-	-	-	-	1,676	1,676
Dividend	-	-	-	-	-	-	-	-	-	-	(281)	(140)	(421)
Reissued shares	-	-	218	-	-	-	-	-	-	-	(25)	-	193
Acquisition of NCI without a change in control	-	-	-	-	-	-	-	-	-	-	(20)	-	(20)
Cancellation of treasury shares	(10)	(18)	746	-	-	-	-	-	-	-	(718)	-	-
Repurchase of shares	-	-	(165)	-	-	-	-	-	-	-	-	-	(165)
Fair value changes of derivatives	-	-	-	-	-	-	-	(24)	-	-	-	-	(24)
Release to income statement	-	-	-	(13)	-	-	-	7	-	-	-	-	(6)
Fair value changes of other financial assets	-	-	-	-	-	-	-	-	46	-	-	-	46
Transfer fair value reserve	-	-	-	-	-	-	-	-	(8)	-	8	-	-
Exchange differences	-	-	-	478	-	-	-	-	-	-	-	-	478
Options and performance shares granted	-	-	-	-	-	-	-	-	-	22	-	-	22
Options and performance shares exercised/canceled	-	-	-	-	-	-	-	-	-	(24)	24	-	-
Transfer to retained earnings	-	-	-	-	16	1	-	-	(93)	-	76	-	-
Changes in joint ventures and associates	-	-	-	1	-	-	-	-	-	-	-	-	1
Income tax	-	-	-	-	-	-	-	8	(1)	-	-	-	7
Remeasurements of defined benefit pension plans	-	-	-	-	-	-	-	-	-	-	132	-	132
Balance at 31 December	328	471	(177)	177	239	121	-	(77)	17	39	6,644	1,536	9,318

For details see the consolidated statement of changes in Note 16 Equity to the 'Consolidated financial statements'.

Legal reserves

In Shareholders' equity, a total amount of €460 million (2020: -€14 million) is included for legal reserves required by Dutch law. The translation reserve relates to exchange gains and losses arising from the translation of the functional currency of foreign operations to the reporting currency of Koninklijke DSM N.V. Further, a legal reserve is recorded for capitalized development costs. The legal reserve for participating interests is recorded to the extent that there are limitations for Koninklijke DSM N.V. to arrange profit distributions from its participating interests. The hedging reserve relates to cash flow hedge accounting. The negative hedge reserve of -€77 million (2020: -€68 million) as part of the legal reserve should be deducted from the freely distributable reserve. In addition, a revaluation reserve has been included for fair value changes of unquoted equity instruments of participating interests with no frequent notations owned by DSM; debit balances are recorded as part of Other reserves, which are considered freely distributable reserves.

Other reserves

The Other reserves comprise a Fair value reserve for fair value changes of unquoted equity instruments of participating interests with frequent notations, debit balances of the legal reserve for fair value changes of unquoted equity instruments of participating interests owned by DSM, and a Reserve for share-based compensation.

In the 'Consolidated financial statements', the Other reserves consist of the Translation reserve, Fair value reserve, Hedging reserve and Reserve for share-based compensation. See Note 16 Equity to the 'Consolidated financial statements'.

Profit appropriation

According to article 32 of the Articles of Association of Koninklijke DSM N.V. and with the approval of the Supervisory Board, every year the Managing Board determines the portion of the net profit to be appropriated to the reserves. For the year 2021, the net profit is €1,676 million (2020: €506 million) and the amount to be appropriated to the reserves has been established at €1,238 million (2020: €86 million). From the subsequent balance of the net profit of €438 million (2020: €420 million), dividend is first distributed on the Cumulative Preference Shares B. At the end of 2021, no Cumulative Preference Shares B were in issue (same as for 2020). Subsequently, 2.52% (2020: 2.94%) dividend is distributed on the Cumulative Preference Shares A, based on a share price of €5.29 (2020: €5.29) per Cumulative Preference Share A. For 2021, this distribution amounts to €0.13 (2020: €0.16) per share, which is €6 million in total. An interim dividend of €0.05 per Cumulative Preference Share A paid in August 2021, the final dividend will then amount to €0.08 per Cumulative Preference Share A.

The profit remaining after distribution of these dividends on the Cumulative Preference Shares A of €432 million (2020: €413 million) will be put at the disposal of the Annual General Meeting of Shareholders in accordance with the provisions of Article 32, section 5 of the Articles of Association.

The Managing Board proposes a dividend on ordinary shares outstanding for the year 2021 of €2.50 (2020: €2.40) per share. With an interim dividend of €0.80 (2020: €0.80) per ordinary share paid in August 2021, the final dividend will then amount to €1.70 (2020: €1.60) per ordinary share.

If the Annual General Meeting of Shareholders makes a decision in accordance with the proposal, the net profit will be appropriated as follows.

in € million	2021	2020
Net profit for the year	**1,676**	**506**
Profit appropriation:		
- To be added to the reserves	1,238	86
- Dividend on Cumulative Preference Shares A	6	7
- Interim dividend on ordinary shares	138	137
- Final dividend distributable on ordinary shares	294	276

7 Borrowings

	2021		2020	
	Total	Of which current	Total	Of which current
Debenture loans	2,739	-	3,237	-
Total	**2,739**	**-**	**3,237**	**-**

At 31 December 2021, there were five debenture loans (€2,739 million, maturing in 2024, 2025, 2026 and from 2026 through 2032). During 2021, the debenture loan in the amount of €500 million originally maturing in 2022, was early redeemed.

The repayment schedule for borrowings is as follows.

Borrowings by maturity

	2021	2020
2022	-	500
2023	-	-
2024	499	499
2025 and 2026	1,248	1,246
After 2026	992	992
Total	**2,739**	**3,237**

In agreements governing loans with a residual amount at year-end 2021 of €2,739 million (31 December 2020: €3,237 million), clauses have been included which restrict the provision of security. More information on borrowings is provided in Note 19 Borrowings to the 'Consolidated financial statements'.

8 Other current liabilities

	2021	2020
Liabilities to subsidiaries	2,347	2,308
Other liabilities	18	86
Total	**2,365**	**2,394**

The Liabilities to subsidiaries concern mainly the current account toward the DSM internal financing company. These liabilities carry a short-term maturity and are interest-bearing. The increase of this current account in 2021 is mainly caused by changing financing needs.
The carrying values of the recorded liabilities are a reasonable approximation of their respective fair values, given the short maturities of the positions. The decrease in the other liabilities relates mainly to the payment of the deferred consideration for the Erber Group acquisition. All liabilities have an estimated maturity shorter than one year.

9 Contingent liabilities

Guarantee obligations on behalf of affiliated companies and third parties amounted to €628 million (31 December 2020: €521 million). Koninklijke DSM N.V. has declared in writing that it accepts several liabilities for debts arising from acts in law of a number of consolidated companies (including relating to the Dutch fiscal unity for income tax and VAT). These debts are included in the consolidated balance sheet.

10 Personnel

During the 2021 financial year, the average number of staff employed by DSM N.V. amounted to 2 employees (2020: 2). Both were employed inside the Netherlands.

11 Financial expense

Financial expense of €106 million (2020: net €95 million) mainly consists of the interest costs on bonds issued and the counterpart of the net investment hedge. See also Note 19 Borrowings and Note 23 Financial instruments and risks to the 'Consolidated financial statements'.

12 Remuneration of Managing Board and Supervisory Board

Disclosure of the total board remuneration is based on section 383 book 2 of the Dutch Civil Code. Furthermore, the members of the Executive Committee (which includes the Managing Board) and the Supervisory Board meet the definition of key management personnel as defined in IAS 24 'Related Parties'. IAS 24 requires disclosure of the total of short-term employee benefits (salary and Short-Term incentive), post-employment (pension expenditure) and other long-term benefits (none), termination benefits and share-based payment cost (share-based compensation), which are reported in the table below.

Key management personnel compensation and total board remuneration

	2021	2020
Salary	4,443	5,145
Short-Term incentive	3,474	2,679
Pension expenditure	801	956
Share-based compensation	3,774	7,526
Other	2,216	3,628
Total key management personnel compensation	**14,708**	**19,934**
Of which: Managing Board remuneration[1]	5,830	12,096
Supervisory Board remuneration	805	806

1 See Remuneration report 2021.

The difference in total key management personnel compensation is determined by changes in the composition of the Executive Committee, resulting in lower amounts on salary and pension contribution in 2021 while the higher STI over 2021 represents the development of the business performance. The 2020 total compensation includes the impact of the CEO change in 2020 (share-based compensation and an amount subject to article 32bb of the Dutch Wage Tax Act).

Heerlen, 1 March 2022

Managing Board,

Geraldine Matchett, Co-CEO
Dimitri de Vreeze, Co-CEO

Heerlen, 1 March 2022

Supervisory Board,

Thomas Leysen, Chair
John Ramsay, Deputy Chair
Eileen Kennedy
Carla Mahieu
Erica Mann
Frits van Paasschen
Pradeep Pant
Corien Wortmann-Kool

Other information

Independent auditor's report

To: the Annual General Meeting of Shareholders and the Supervisory Board of Koninklijke DSM N.V.

Report on the audit of the financial statements 2021 included in the Integrated Annual Report

Our opinion

In our opinion:

- the accompanying consolidated financial statements give a true and fair view of the financial position of Koninklijke DSM N.V. (hereafter: Royal DSM) as at 31 December 2021 and of its result and its cash flows for the year then ended, in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code.
- the accompanying parent company financial statements give a true and fair view of the financial position of Royal DSM as at 31 December 2021 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the financial statements 2021 of Royal DSM based in Heerlen. The financial statements include the consolidated financial statements and the parent company financial statements.

The consolidated financial statements comprise:

1 the consolidated balance sheet as at 31 December 2021;
2 the following consolidated statements for 2021: the income statement, the statements of comprehensive income, changes in equity and cash flows; and
3 the notes comprising a summary of the significant accounting policies and other explanatory information.

The parent company financial statements comprise:

1 the parent company balance sheet as at 31 December 2021;
2 the parent company income statement for 2021; and
3 the notes comprising a summary of the accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the 'Our responsibilities for the audit of the financial statements' section of our report.

We are independent of Royal DSM in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

Our audit procedures were determined in the context of our audit of the financial statements as a whole. Our observations in respect of going concern, fraud and non-compliance with laws and regulations, climate and the key audit matters should be viewed in that context and not as separate opinions or conclusions.

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Audit approach

Summary

Materiality

- Materiality of EUR 45 million
- 4.8% of normalized profit before income tax expense

Group audit

- Audit coverage of 79% of total assets
- Audit coverage of 76% of net sales

Going concern and Fraud/Noclar

- Going concern: no significant going concern risks identified
- Fraud & Non-compliance with laws and regulations (Noclar): we identified management override of controls and revenue recognition, laid down in the auditing standards, as the presumed fraud risks.

Climate-related risks

- Royal DSM’s strategy, risk assessment and possible future effects of climate change have been disclosed.
- We have considered the impact of climate-related risks on our identification and assessment of risks of material misstatement in the financial statements.

Key audit matters

- Accounting for acquisitions of Amyris’ Flavour & Fragrance business and First Choice Ingredients.
- Divestment of Resins and Functional Materials and associated businesses.

Opinion

Unqualified

Materiality

Based on our professional judgement we determined the materiality for the financial statements as a whole at EUR 45 million (2020: EUR 45 million). The materiality is determined with reference to profit before income tax expense, normalized for acquisition/divestment related expenses to arrive at a normalized level, resulting in a percentage of 4.8% (2020: 5.9%). We consider this normalized profit before income tax expense as the most appropriate benchmark following our analysis of the common information needs of users of the financial statements. For 2021 and 2020, this benchmark has been influenced by the divestment of the Resins and Functional Materials and associated businesses. Although included in net profit for the year, the results of these businesses and related activities, including the result from the disposal in 2021, have been presented separate from continuing operations, and are no longer part of (normalized) profit before income tax expense. In addition, the appropriateness of the materiality was assessed by comparing the amount to consolidated net sales of which it represents 0.5% (2020: 0.6%). We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the Supervisory Board that misstatements identified during our audit in excess of EUR 2 million would be reported to them, as well as smaller misstatements that in our view must be reported on qualitative grounds.

Scope of the group audit

Royal DSM is at the head of a group of components. The financial information of this group is included in the financial statements of Royal DSM.

Because we are ultimately responsible for the auditor's report, we are also responsible for directing, supervising and performing the group audit. In this respect we have determined the nature and extent of the audit procedures to be carried out for components reporting for group audit purposes. Decisive were the size and/or the risk profile of the components or operations. Based on our risk assessment, we selected 23 components (2020: 26 components) to perform audits for group reporting purposes on a complete set of financial information. In addition, we selected 13 components (2020: 16 components) to perform specified audit procedures for group reporting purposes on specific items of financial information.

This resulted in a coverage of 76% (2020: 73%) of total net sales and 79% (2020: 79%) of total assets. The remaining 24% of total net sales (2020: 27%) and 21% of total assets (2020: 21%) is represented by a significant number of components ('Remaining components'), none of which individually represent more than 3% of total net sales and 2% of total assets.

For these remaining components, we performed among others analytical procedures to validate our assessment that there are no risks of material misstatement within these components.

Our procedures as described above can be summarized as follows:

Total assets

70%	9%	21%
Audit of the complete reporting package	Specified audit procedures	Central procedures remaining components

Total net sales

57%	19%	24%
Audit of the complete reporting package	Specified audit procedures	Central procedures remaining components

We have:

- performed audit procedures at group level in respect of areas such as the annual goodwill impairment tests, other asset impairment (trigger) assessments, income tax for the Dutch fiscal unities, acquisitions of subsidiaries, accounting for divestments, restructuring provisions, treasury and shared service centers; and
- used the work of local KPMG ('component auditors') when auditing financial information or performing specified audit procedures at component level.

The group audit team has set materiality levels for the components, which ranged from EUR 5 million to EUR 12.5 million (2020: EUR 2 million to EUR 12.5 million), based on the mix of size and risk profile of the respective components.

The group audit team provided detailed instructions to all Business Group and component auditors part of the group audit, covering the significant audit areas, including the relevant risks of material misstatement, and the information required to be reported back to the group audit team.

The group audit team scheduled (virtual) site visit meetings with local component auditors and local component management in the United States of America, Switzerland, Austria, China and the shared service center in India to review selected component auditor documentation. In view of restrictions due to the Covid-19 pandemic, travelling to component audit teams was not always practicable, and we only visited in person the component auditors and Royal DSM's locations in the United States of America and Austria.

As a result, we have requested selected component auditors to provide us with remote access to audit workpapers to perform these evaluations. In addition, due to the inability to arrange in-person meetings with component auditors and local management, we have increased the use of alternative methods of communication with them, including issuing additional written instructions, exchange of emails and virtual meetings.

Virtual meetings were held with all component auditors that participated in the group audit. During these (virtual) visits and meetings, we discussed the audit approach and the audit findings and observations reported to the group audit team.

By performing the procedures mentioned above at group components, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the financial statements.

Audit response to going concern – no significant going concern risks identified

The Managing Board has performed its going concern assessment and has not identified any significant going concern risks. To assess management's assessment, we have performed, among other things, the following procedures:

- we considered whether the Managing Board's assessment of the going concern risks includes all relevant information of which we are aware as a result of our audit;
- we inspected the financing agreements for terms or conditions that could lead to significant going concern risks;
- we analyzed the operating results forecast and the related cash flows compared to the previous financial year, developments in the business sector and any information of which we are aware as a result of our audit;
- we analyzed the company's financial position as at year-end and compared it to the previous financial year in terms of indicators that could identify significant going concern risks.

The outcome of our risk assessment procedures did not give reason to perform additional audit procedures on management's going concern assessment.

Audit response to the risk of fraud and non-compliance with laws and regulations

In the chapter "Corporate governance and risk management" of the Integrated Annual Report, the Managing Board describes its procedures in respect of the risks of fraud and non-compliance with laws and regulations. In the chapter "Supervisory Board Report", the supervisory board reflects on this.

As part of our audit, we have gained insights into Royal DSM and its business environment, and evaluated the design and implementation of Royal DSM's risk assessment in relation to fraud and non-compliance. Our procedures included, among other things, assessing Royal DSM's code of business conduct, alert cases (whistleblowing procedures), compliance policies and its procedures to investigate indications of possible fraud and non-compliance. Furthermore, we performed relevant inquiries with the Managing Board, Supervisory Board and other relevant functions, such as the Corporate Operational Audit department, Legal Counsel and Fraud Committee. As part of our audit procedures, we:

- assessed other positions held by Managing Board members and Executive Committee members and paid special attention to procedures and governance in view of possible conflicts of interest;
- evaluated indications of possible fraud and non-compliance;
- evaluated correspondence with supervisory authorities and regulators as well as legal confirmation letters.

In addition, we performed procedures to obtain an understanding of the legal and regulatory frameworks that are applicable to Royal DSM and identified the following areas as those most likely to have a material effect on the financial statements:

- Health and safety regulation (reflecting the nature of Royal DSM's production and distribution processes);
- Environmental regulation (reflecting the environmental clean-up responsibilities related to mainly Royal DSM's former production and distribution processes);
- Competition legislation (reflecting Royal DSM's operations across the world and potential investigations by national competition authorities);
- Employment legislation (reflecting Royal DSM's significant and geographically diverse work force);
- Consumer product law relating to product safety (reflecting the nature of Royal DSM's diverse product base).

We, together with our forensics specialists, evaluated the fraud and non-compliance risk factors to consider whether those factors indicate a risk of material misstatement in the financial statements.

Based on the above and the auditing standards, we identified the following fraud risks that are relevant to our audit, including the relevant presumed risks laid down in the auditing standards, and responded as follows:

Management override of controls (a presumed risk)

Risk:

- Fraud risk related to management override and alteration of (financial) results to meet external expectations, to maintain/increase current stock price and to meet bonus targets.

Responses:

- We evaluated the design and the implementation of internal controls that mitigate fraud risks with respect to journal entries.
- We performed data analyses on high-risk journal entries and evaluated key estimates and judgements for bias by management, such as estimates relating to impairment testing of goodwill and development projects, accounting for retirement and other post-employment benefits and accounting for acquisitions, including retrospective reviews of prior year's estimates. Where we identified instances of unexpected journal entries or other risks through our data analytics, we performed additional audit procedures to address each identified risk. These procedures also included testing of transactions back to source information.
- We incorporated elements of unpredictability in our audit, including revising our selection criteria in our data analyses of high-risk journal entries and in performing data analytics procedures such as risk assessment analytics in the sales process to identify possible increased fraud risks.

Revenue recognition (a presumed risk)
Risk:

- Fraudulent revenue recognition on sales cut-off around the end of the reporting period is an inherent risk within Royal DSM.

Responses:

- In addition to the procedures already mentioned above, we evaluated the design and the implementation of internal controls that mitigate fraud risks with respect to revenue recognition.
- Depending on local facts and circumstances our component auditors identified either revenue recognized before or subsequent to year-end as the period associated with the fraud risk.
- To assess whether revenue was recognized in the appropriate period, for selected sales transactions recognized around year-end we inspected agreements with the customers and shipping documents.
- Further, we inspected selected credit notes issued around year-end to assess whether revenue was recognized in the correct reporting period.

Our procedures to address the identified risks of fraud did not result in a key audit matter.

We communicated our risk assessment, audit responses and results to the Managing Board and the Supervisory Board.

Our audit procedures did not reveal indications and/or reasonable suspicion of fraud and non-compliance that are considered material for our audit.

Audit response to climate-related risks

The Managing Board is responsible for preparing the financial statements in accordance with the applicable financial reporting framework, including considering whether the implications from climate-related risks and commitments have been appropriately accounted for and disclosed. The Managing Board has performed its analysis of the impact of climate-related risks on Royal DSM's business and operations going forward. In the 'Climate-related risks' chapter, included in the 'Corporate Governance and risk management' section, the Managing Board concluded that currently no material short-term climate risks have been identified through specific climate risk assessments or regular risk assessments.

The evaluation of the effectiveness of Royal DSM's strategy against internal or external goals set is not in scope of our audit of the financial statements. As part of our audit we consider potential effects of climate-related risks on the accounts and disclosures, including estimates and judgements in the current year's financial statements to determine whether the financial statements are free from material misstatements. This includes discussion with the Managing Board and the Supervisory Board of Royal DSM's strategy in relation to climate change, and inspecting minutes and external communications for significant climate related commitments, strategies and plans made by management.

Our key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements. We have communicated the key audit matters to the Supervisory Board. The key audit matters are not a comprehensive reflection of all matters discussed.

Compared to last year the key audit matter with respect to the impairment of cash generating units is not included, as this specifically relates to the impairments that were recorded in the financial year 2020.

Accounting for acquisitions of Amyris' Flavour & Fragrance business and First Choice Ingredients

Description

As disclosed in Note 3 to the financial statements, during 2021, Royal DSM completed the acquisitions of Amyris' Flavour & Fragrance business and First Choice Ingredients. The acquisitions involved a total consideration of EUR 592 million and had an aggregated impact on Goodwill and Intangible assets of EUR 219 million and EUR 350 million, respectively.

The acquisitions were significant to our audit due to the financial impact and complexity of purchase price accounting including related judgements and assumptions used in the determination of the fair values of assets acquired and liabilities assumed.

Our response

We inspected the agreements and other documents underlying the acquisitions to gain an understanding of the contractual terms and conditions to assess the consideration and the acquired identifiable assets and liabilities. We obtained the reports from the external valuation experts engaged by Royal DSM to assist management with the purchase price accounting and the identification of identifiable assets and liabilities in the respective business combinations. We involved valuation specialists to evaluate management's valuation models, and assumptions used such as growth rates and discount rates to arrive at the fair value of assets and liabilities recognized in the purchase price allocation. Our assessment of key assumptions used by management included a comparison with available external information such as market indices and financial metrics of peer companies.

Finally, we assessed the adequacy of the presentation and disclosure (Note 3) of the acquisitions in the financial statements.

Our observation

We consider that the outcome of the purchase price accounting is reasonable. The acquisitions are adequately disclosed in Note 3 to the financial statements.

Divestment of Resins and Functional Materials and associated businesses

Description

As disclosed in Note 3 to the financial statements, on 1 April 2021, Royal DSM completed the sale of its Resins and Functional Materials and associated businesses ('RFM business') to Covestro for a consideration of EUR 1.6 billion. The net book result on the transaction amounts to EUR 570 million.

The divestment is significant to our audit due to the amounts involved and its impact on the financial statements. Furthermore, the transaction is non-routine and involves a certain level of management judgement in calculating the capital gain tax that is part of the net book result.

Our response

We inspected the contractual agreements and other relevant documents underlying the divestment in order to understand key terms and conditions and to assess the accounting impact. We verified that the deconsolidation of the RFM business has been recorded at the date of disposal. As part of our audit procedures we assessed the book result by vouching the sales price to the contractual agreement, the cash receipts to bank statements, the net asset values that have been de-consolidated to underlying accounting records and allocated transaction costs to underlying supporting documentation such as invoices and contractual agreements.

In relation to the capital gain tax, we inspected documentation underlying the determination of the capital gain such as the relevant income tax return and assessed the underlying assumptions and calculations. Furthermore, we have involved our KPMG tax specialists.

Our observation

We consider that the net book result, as well as the presentation of the results as those from discontinuing operations, are adequately reflected and disclosed in Note 3 to the financial statements.

Report on the other information included in the Integrated Annual Report

In addition to the financial statements and our auditor’s report thereon, the Integrated Annual Report contains other information.

Based on the following procedures performed, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements; and
- contains the information as required by Part 9 of Book 2 of the Dutch Civil Code for the report by the Managing Board and other information.

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing these procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is less than the scope of those performed in our audit of the financial statements.

The Managing Board is responsible for the preparation of the other information, including the information as required by Part 9 of Book 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements and ESEF

Engagement

We were engaged by the Annual General Meeting of Shareholders as auditor of Royal DSM on 7 May 2014, as of the audit for the year 2015 and have operated as statutory auditor ever since that financial year.

No prohibited non-audit services

We have not provided prohibited non-audit services as referred to in Article 5(1) of the EU Regulation on specific requirements regarding statutory audits of public-interest entities.

European Single Electronic Format (ESEF)

Royal DSM has prepared its Integrated Annual Report in ESEF. The requirements for this format are set out in the Commission Delegated Regulation (EU) 2019/815 with regard to regulatory technical standards on the specification of a single electronic reporting format (these requirements are hereinafter referred to as: the RTS on ESEF).

In our opinion, the Integrated Annual Report prepared in the XHTML format, including the partially tagged consolidated financial statements as included in the reporting package by Royal DSM, has been prepared in all material respects in accordance with the RTS on ESEF.

The Managing Board is responsible for preparing the Integrated Annual Report including the financial statements in accordance with the RTS on ESEF, whereby the Managing Board combines the various components into a single reporting package. Our responsibility is to obtain reasonable assurance for our opinion whether the annual report in this reporting package, is in accordance with the RTS on ESEF.

Our procedures taking into consideration Alert 43 of NBA (the Netherlands Institute of Chartered Accountants), included amongst others:

- obtaining an understanding of the Royal DSM's financial reporting process, including the preparation of the reporting package;
- obtaining the reporting package and performing validations to determine whether the reporting package containing the Inline XBRL instance document and the XBRL extension taxonomy files have been prepared in accordance with the technical specifications as included in the RTS on ESEF;
- examining the information related to the consolidated financial statements in the reporting package to determine whether all required tagging has been applied and whether these are in accordance with the RTS on ESEF.

Description of responsibilities regarding the financial statements

Responsibilities of the Managing Board and the Supervisory Board for the financial statements

The Managing Board is responsible for the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code. Furthermore, the Managing Board is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error. In that respect the Managing Board, under supervision of the Supervisory Board, is responsible for the prevention and detection of fraud and non-compliance with laws and regulations, including determining measures to resolve the consequences of it and to prevent recurrence.

As part of the preparation of the financial statements, the Managing Board is responsible for assessing the Royal DSM’s ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the Managing Board should prepare the financial statements using the going concern basis of accounting unless the Managing Board either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so. The Managing Board should disclose events and circumstances that may cast significant doubt on the company’s ability to continue as a going concern in the financial statements.

The Supervisory Board is responsible for overseeing the Royal DSM’s financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A further description of our responsibilities for the audit of the financial statements is included in appendix of this auditor's report. This description forms part of our auditor’s report.

Amstelveen, 1 March 2022

KPMG Accountants N.V.

P.J. Groenland – van der Linden RA

Appendix:
Description of our responsibilities for the audit of the financial statements

Appendix

Description of our responsibilities for the audit of the financial statements

We have exercised professional judgement and have maintained professional scepticism throughout the audit, in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit included among others:

- identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than the risk resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Royal DSM's internal control;
- evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Managing Board;
- concluding on the appropriateness of the Managing Board's use of the going concern basis of accounting, and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on Royal DSM's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause a company to cease to continue as a going concern;
- evaluating the overall presentation, structure and content of the financial statements, including the disclosures; and
- evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We are solely responsible for the opinion and therefore responsible to obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the financial statements. In this respect we are also responsible for directing, supervising and performing the group audit.

We communicate with the Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant findings in internal control that we identify during our audit. In this respect we also submit an additional report to the Supervisory Board in accordance with Article 11 of the EU Regulation on specific requirements regarding statutory audits of public-interest entities. The information included in this additional report is consistent with our audit opinion in this auditor's report.

We provide the Supervisory Board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Supervisory Board, we determine the key audit matters: those matters that were of most significance in the audit of the financial statements. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, not communicating the matter is in the public interest.

Assurance report of the independent auditor

To: the Annual General Meeting of Shareholders and the Supervisory Board of Koninklijke DSM N.V.

Report on the audit of the Sustainability information 2021 included in the Integrated Annual Report

Our opinion

We have audited the sustainability information in the sections 'Key data', 'Co-CEO letter, 'Our approach to the Sustainable Development Goals', 'Report by the Managing Board, consisting of the chapters Purpose, Strategy, Case studies, Stakeholders, People and Planet', the 'Non-financial reporting policy', the 'Sustainability Statements' (excluding section '2. EU Taxonomy' of the 'Notes to the Sustainability statements') and the 'Sustainability tables', as included in the Integrated Annual Report for the year 2021 (hereafter: the 'Sustainability Information') of Koninklijke DSM N.V. (hereafter 'Royal DSM'), based in Heerlen, the Netherlands. An audit is aimed to obtain reasonable assurance.

In our opinion, the Sustainability Information is prepared, in all material respects, in accordance with the GRI Sustainability Reporting Standards and Royal DSM's internally developed supplemental reporting criteria as disclosed in the section Non-financial reporting policy included in the chapter 'Reporting policies' of the Integrated Annual Report.

Basis for our opinion

We have conducted our audit on the Sustainability Information in accordance with Dutch law, including Dutch Standard 3810N 'Assurance-opdrachten inzake maatschappelijke verslagen' (Assurance engagements relating to sustainability reports), which is a specified Dutch standard that is based on the International Standard on Assurance Engagements (ISAE) 3000 'Assurance Engagements Other than Audits or Reviews of Historical Financial Information'. Our responsibilities in this regard are further described in the 'Our responsibilities for the audit of the Sustainability Information' section of our report.

We are independent of Royal DSM in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence). Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We believe the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Reporting criteria

The Sustainability Information needs to be read and understood together with the reporting criteria. Royal DSM is solely responsible for selecting and applying these reporting criteria, taking into account applicable law and regulations related to reporting.

The reporting criteria used for the preparation of the Sustainability Information are the GRI Sustainability Reporting Standards and Royal DSM's internally developed supplemental reporting criteria as disclosed in the section Non-financial reporting policy included in the chapter 'Reporting policies' of the Integrated Annual Report.

The GRI Sustainability Reporting Standards are the most widely adopted global standards for sustainability reporting and are used by Royal DSM for reporting publicly on its economic, environmental and social sustainability indicators.

Materiality

Based on our professional judgement we determined materiality levels for each relevant part of the Sustainability Information as included in the Integrated Annual Report. When evaluating our materiality levels, we have taken into account quantitative and qualitative considerations as well as the relevance of information for both stakeholders and Royal DSM.

Scope of the group audit

Royal DSM is the head of a group of components. The Sustainability Information incorporates the consolidated information of this group of components.

Our group audit procedures consisted of audit procedures at corporate and component level. Our selection of components in scope of our audit procedures is primarily based on the component's individual contribution to the consolidated Sustainability Information. Furthermore, our selection of components considered relevant reporting risks and geographical spread.

By performing our procedures at corporate and component level, we have been able to obtain sufficient and appropriate audit evidence about Royal DSM's reported Sustainability Information to provide an opinion about the Sustainability Information

Our key audit matter

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the Sustainability Information. We have communicated the key audit matter to the Managing Board and the Supervisory Board. The key audit matter is not a comprehensive reflection of all matters discussed.

This key audit matter was addressed in the context of our audit of the Sustainability Information as a whole and we do not provide a separate opinion on this matter.

The sustainability indicator on Royal DSM's solutions labeled as Brighter Living Solutions was determined to be a key audit matter as the assessment is inherently subject to assumptions and management judgement, whereas the determination of other important sustainability indicators on Safety, Health and Environment and Human Resources require such judgement to a lesser extent.

Brighter Living Solutions

Description

Royal DSM reports on Brighter Living Solutions ("BLS”), which are products and services that have specific environmental or social benefits compared to mainstream reference solutions.

The indicator is defined as net sales from BLS as a percentage of total net sales of Royal DSM. BLS was significant to our audit since we identified that it serves as a material indicator for Royal DSM to report on the environmental and social impact of its solutions and because the assessment of solutions to qualify as BLS is inherently subject to assumptions and judgement

Our response

We obtained an understanding of the reporting process, the applicable definitions and reporting criteria and we have evaluated the design and implementation of relevant internal controls. We inquired Royal DSM’s staff members involved in the BLS assessment process to understand the application of these definitions and reporting criteria and we challenged the underlying evidence, such as the life cycle assessments and expert opinions for solutions classified as BLS and assessed the calculation of the BLS percentage. Finally, we assessed whether the reporting criteria, assumptions and definitions are adequately disclosed in the Integrated Annual Report and on Royal DSM’s website.

Our observation

We consider that the definitions and criteria for BLS as described in Royal DSM's internally developed supplemental reporting criteria, as disclosed in the section Non-financial reporting policy included in the chapter 'Reporting policies' of the Integrated Annual Report are appropriately applied and that the assumptions are adequately explained. We also consider the disclosure on BLS as being adequate.

Limitations to the scope of our audit

The Sustainability Information includes prospective information such as ambitions, strategy, plans, expectations and estimates. Inherently the actual future results are uncertain. We do not provide any assurance on the assumptions and achievability of prospective information included in the aforementioned sections of the Integrated Annual Report.

References to external sources or websites in the Integrated Annual Report are not part of the Integrated Annual Report itself nor the Sustainability Information as audited by us. Therefore, we do not provide assurance on this information.

Our opinion is not modified in respect to these matters.

Responsibilities of the Managing Board and the Supervisory Board for the Sustainability Information

The Managing Board of Royal DSM is responsible for the preparation of the Sustainability Information in accordance with the GRI Sustainability Reporting Standards and Royal DSM's internally developed supplemental reporting criteria as disclosed in the section Non-financial reporting policy included in the chapter 'Reporting policies' of the Integrated Annual Report, including the identification of stakeholders and the definition of material matters. The choices made by the Managing Board regarding the scope of the Sustainability Information and the reporting policy are summarized in the section 'Non-financial reporting policy' of the Integrated Annual Report.

Furthermore, the Managing Board is responsible for such internal control as it determines is necessary to enable the preparation of the Sustainability Information that is free from material misstatements, whether due to fraud or error.

The Supervisory Board is, amongst other things, responsible for overseeing Royal DSM's sustainability reporting process.

Our responsibilities for the audit of the Sustainability Information

Our responsibility is to plan and perform our audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not have detected all material misstatements due to fraud or error.

Misstatements can arise from fraud or errors and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the decisions of users taken on the basis of the Sustainability Information. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

We apply the 'Nadere Voorschriften Kwaliteitssystemen' (Regulations for Quality management systems) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have exercised professional judgement and have maintained professional skepticism throughout the audit, in accordance with the Dutch Standard 3810N, ethical requirements and independence requirements.

Our audit included among others:

- Performing an analysis of the external environment and obtaining an understanding of relevant social themes and issues, and the characteristics of Royal DSM;
- Evaluating the appropriateness of the reporting criteria used, their consistent application and related disclosures in the Sustainability Information. This includes the evaluation of the results of the stakeholders' dialogue and the reasonableness of estimates made by management of Royal DSM;
- Obtaining an understanding of the systems and processes for collecting, reporting and consolidating the Sustainability Information, including obtaining an understanding of internal control relevant to our audit, but not for the purpose of expressing an opinion on the effectiveness of Royal DSM's internal control;
- Evaluating the procedures performed by Royal DSM's Corporate Operational Audit department;
- Identifying and assessing the risks if the Sustainability Information is misleading or unbalanced, or contains material misstatements, whether due to errors or fraud. Designing and performing further audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk that the Sustainability Information is misleading or unbalanced, or the risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from errors. Fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. These further procedures included among others:
  - Inquiry with management and relevant staff of Royal DSM at corporate and component level responsible for the sustainability strategy, policies and results;
  - Inquiry with relevant staff of Royal DSM responsible for providing the information for, carrying out internal control procedures on, and consolidating the data in the Sustainability Information;
  - Determining the nature and extent of the audit procedures at corporate and component level. For this, the nature, size and/or risk profile of these components were decisive. Based thereon we selected the components to visit. In view of restrictions on the movement of people across borders, and also within significantly affected countries, due to the Covid-19 pandemic, we considered how to make appropriate changes to the audit plan. Due to the aforementioned restrictions, travelling generally was not practicable in the current environment and we conducted our visits remotely for components where travel was not possible. The visits were aimed at, on a component level, validating source data and evaluating the design, implementation and operation of controls and validation procedures;
  - Obtaining supporting information that the Sustainability Information reconciles with underlying records of Royal DSM;
  - Evaluating relevant internal and external documentation, on a test basis, to determine the reliability of the information in the Sustainability Information; and
  - Performing an analytical review of the data and trends.
- Evaluating the consistency of the Sustainability Information with the information in the Integrated Annual Report which is not included in the scope of our audit;
- Evaluating the overall presentation, structure and content of the Sustainability Information; and
- Considering whether the Sustainability Information as a whole, including the disclosures, reflects the purpose of the reporting criteria used.

We communicate with the Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant findings, including any significant findings in internal control that we identify during our audit.

Amstelveen, 1 March 2022

KPMG Accountants N.V.

P.J. Groenland – van der Linden RA

Special statutory rights

DSM Preference Shares Foundation

The DSM Preference Shares Foundation was established in 1989.

By virtue of DSM's Articles of Association, 375,000,000 Cumulative Preference Shares B can be issued. The listing prospectus of 1989 stated that if, without the approval of the Managing Board and Supervisory Board, either a bid is made for the ordinary shares or a significant participation in ordinary shares is built up, or such an event is likely to occur, then these Preference Shares B may be issued, which shall have the same voting rights as the ordinary shares.

Under an agreement entered into in 1999, and subsequently amended, between the DSM Preference Shares Foundation and DSM, the Foundation has the right to acquire such Preference Shares (call option) to a maximum corresponding to 100% of the capital issued in any form other than Preference Shares B, less one.

The objective of the Foundation is to promote the interest of DSM, and the enterprise maintained by DSM and all parties connected therewith, whereby influences that would threaten the continuity, independence or identity, contrary to the aforementioned interests, are resisted to the maximum extent possible.

The purpose of the agreement with the Foundation is, among other things, for the Foundation to allow DSM the opportunity to determine its position, for example with regard to a possible bidder for DSM shares or a party or parties tempting to obtain (de facto) control, to examine any plans in detail and, to the extent applicable, to look for (better) alternatives. Preference Shares B will not be outstanding longer than necessary. As soon as there are no longer any reasons for the Preference Shares B to remain outstanding, the Managing Board will convene a General Meeting of Shareholders and recommend the cancellation of the Preference Shares B that are still outstanding.

The Foundation acquired no Preference Shares B in 2021.

The DSM Preference Shares Foundation is an independent legal entity within the meaning of article 5:71, first paragraph, under c of the Dutch Act on Financial Supervision *(Wet op het financieel toezicht)*.

On 31 December 2021, the Board of the Foundation was composed as follows:

Gerard Kleisterlee, Chair
Cees Maas, Deputy Chair
Bas Kortmann

Important dates

Annual General Meeting of Shareholders

The Annual General Meeting of Shareholders is to be held on Tuesday, 10 May 2022 at 14:00 hours CET.

Important dates

Publication of first-quarter	Tuesday, 3 May 2022
Ex-dividend quotation	Thursday, 12 May 2022
Publication of second-quarter	Tuesday, 2 August 2022
Publication of third-quarter	Tuesday, 1 November 2022

DSM figures: five-year summary

All figures are including discontinued operations unless stated otherwise, see also Note 3 Change in the scope of the consolidation.

Balance sheet

x € million	2021	2020	2019	2018	2017
Assets					
Intangible assets	5,310	4,440	3,515	3,090	3,058
Property, plant and equipment	3,957	3,775	4,040	3,511	3,313
Deferred tax assets	203	240	217	248	281
Share in associates and joint ventures	64	93	155	205	227
Derivatives	48	61	27	14	16
Other financial assets	302	317	265	263	475
Non-current assets	9,884	8,926	8,219	7,331	7,370
Inventories	2,297	1,879	2,019	1,993	1,848
Current receivables	1,696	1,483	1,698	1,738	1,690
Derivatives	30	48	19	21	41
Current investments	489	43	688	1,277	954
Cash and cash equivalents	1,561	871	800	1,281	899
Assets held for sale	56	1,096	-	-	-
Current assets	6,129	5,420	5,224	6,310	5,432
Total assets	16,013	14,346	13,443	13,641	12,802
Equity and liabilities					
Shareholders' equity	9,318	7,399	7,731	7,782	6,962
Non-controlling interests	79	88	104	33	103
Equity	9,397	7,487	7,835	7,815	7,065
Deferred tax liabilities	485	431	296	254	259
Employee benefit liabilities	323	414	413	413	356
Provisions	96	123	120	116	151
Borrowings	2,989	3,484	2,464	2,272	2,551
Derivatives	9	1	7	3	4
Other non-current liabilities	283	163	145	197	188
Non-current liabilities	4,185	4,616	3,445	3,255	3,509
Employee benefits liabilities	21	42	43	46	39
Provisions	68	61	48	37	53
Borrowings	104	102	189	380	77
Derivatives	40	13	18	51	20
Current liabilities	2,188	1,771	1,865	2,057	2,039
Liabilities held for sale	10	254	-	-	-
Current liabilities	2,431	2,243	2,163	2,571	2,228
Total equity and liabilities	16,013	14,346	13,443	13,641	12,802

Income statement

x € million	2021	2020	2019	2018	2017
Net sales	9,468	9,038	9,010	8,852[1]	8,632
Net sales from continuing operations	9,204	8,106	7,998	-	-
Adjusted EBITDA[2]	1,842	1,650	1,684	1,532[1]	1,445
EBITDA	2,370	1,476	1,586	1,754	1,348
Adjusted operating profit (EBIT)[2]	1,167	1,011	1,075	1,055[1]	957
Operating profit (EBIT)	1,689	736	954	1,245	846
Operating profit (EBIT) from continuing operations	1,021	662	872	-	-
Financial income and expense	(106)	(67)	(92)	(101)	(104)
Income tax expense	(245)	(129)	(152)	(194)	(115)
Share of the profit of associates and joint ventures	342	(32)	54	129	1,154
Net profit for the year	**1,680**	**508**	**764**	**1,079**	**1,781**
Net profit attributable to non-controlling interests	4	2	6	2	12
Net profit available to equity holders of Koninklijke DSM N.V.	**1,676**	**506**	**758**	**1,077**	**1,769**
Dividend on Cumulative Preference Shares	(6)	(7)	(8)	(8)	(8)
Net profit available to holders of ordinary shares	**1,670**	**499**	**750**	**1,069**	**1,761**
Key figures and financial ratios					
Capital employed	11,012	10,557	9,311	8,181	7,766
Capital expenditure:					
- Intangible assets and Property, plant and equipment	614	622	623	653	586
- Acquisitions	757	1,579	585	50	264
Disposals	1,941	46	44	335	1,546
Depreciation, amortization and impairments	681	740	632	509	502
Net debt	(1,014)	(2,577)	(1,144)	(113)	(742)
Dividend	438	420	425	412	331
Workforce at 31 December, headcount	21,358	23,127	22,174	20,977	21,054
Employee benefit costs (x € million)	1,810	1,848	1,811	1,753	1,768
Financial ratios[2]					
ROCE in %	11.0	10.3	12.0	13.3[1]	12.3
Net sales / average capital employed	0.89	0.92	1.01	1.11[1]	1.11
Current assets / current liabilities	2.52	2.42	2.42	2.45	2.44
Equity / total assets	0.59	0.52	0.58	0.57	0.55
Gearing (net debt / equity plus net debt)	0.10	0.26	0.13	0.01	0.10
Adjusted EBIT / net sales in %	12.4	11.2	11.9	11.9[1]	11.1
Net profit / average Shareholders' equity available to	20.5	6.8	10.0	24.7	28.0
Adjusted EBITDA / financial income and expense	17.4	24.6	18.3	15.2[1]	13.9

1 2018 adjusted for the temporary vitamin effect for comparison reasons of €415 million in sales, €290 million in adjusted EBITDA and €290 million in adjusted operating profit, including associated ratios.

2 In presenting and discussing DSM's financial position, operating results and cash flows, DSM uses certain Alternative performance measures (APMs) not defined by IFRS. These APMs are used because they are an important measure of DSM's business development and DSM's management performance. A full reconciliation of IFRS performance measures to the APMs is given in Note 2 Alternative performance measures.

Information about ordinary DSM shares

per ordinary share in €	2021	2020	2019	2018	2017
Adjusted net profit	5.03	4.43	4.64	5.84	3.92
Net profit	9.68	2.91	4.27	6.10	10.07
Operating cash flow	8.23	8.67	7.84	7.89	5.65
Dividend:	2.50	2.40	2.40	2.30	1.85
- Interim dividend	0.80	0.80	0.77	0.77	0.58
- Final dividend	1.70	1.60	1.63	1.53	1.27
Pay-out including dividend on Cumulative Preference Shares	50	55	52	40	48
Dividend yield (dividend as % of average price of an ordinary DSM share)	2.7	1.9	2.3	2.7	2.8
Share prices on Euronext Amsterdam (closing price):					
- Highest price	199.40	148.55	117.90	92.98	81.66
- Lowest price	136.55	87.52	69.54	68.98	57.20
- At 31 December	198.00	140.80	116.10	71.44	79.67
Number of ordinary shares outstanding (x 1,000):					
- At 31 December	172,969	172,219	172,449	175,651	174,643
- Average	172,648	171,536	175,731	175,323	174,795
Daily trading volumes on Euronext Amsterdam:					
- Average	331	518	635	732	676
- Lowest	31	64	75	130	238
- Highest	914	1,900	2,242	2,617	2,110

Sustainability tables

All figures are including discontinued operations unless stated otherwise, see also the Non-financial reporting policy.

People

	2021	2020	2019	2018	2017
Workforce[1 2]	21,358	23,127	22,174	20,977	21,054
Female:male ratio	30:70	29:71	28:72	28:72	27:73
% by age category					
<26 years[3]	5	5	5	5	6
26–35 years	27	26	26	25	26
36–45 years	29	29	29	30	28
46–55 years	24	25	25	26	25
>55	15	15	15	14	15
% under-represented nationalities					
Executives	31	30	31	31	-
Management	43	42	44	43	-
Other	57	58	59	59	-
% female					
Executives	23	21	20	19	17
Management	32	30	29	28	27
Other	30	29	28	28	28
% executive hires					
Under-represented nationalities	43	65	55	61	-
Female	57	26	32	61	43
% new hires by region					
Netherlands	10	11	11	13	11
Rest of Europe	27	25	24	22	26
North America	21	19	22	25	20
China	14	15	18	16	16
Rest of Asia–Pacific	12	11	12	9	11
Rest of the world	16	19	13	15	15
Total number new hires (excluding acquisitions)	2,489	1,729	2,372	3,005	2,203
Acquisitions	93	1,539	1,161	80	247
Outflow of employees					
Voluntary resignations	1,362	1,052	1,118	1,098	766
Total outflow (excluding divestments)	2,439	2,336	2,352	2,868	1,943
Divestments	1,912	-	-	357	42
Voluntary resignations (% total workforce)	6.7	4.8	5.4	5.3	4.1
Total turnover (% total workforce)	11.9	10.6	11.2	13.9	10.2
Development training in hours per employee	8	6	8	6[4]	
Net sales per employee (x €1,000)	445	414	421	429[5]	420
Safety					
Frequency Index of Recordable Injuries (per 100 DSM employees and contractor employees)	0.22	0.24	0.28	0.33	0.36

1 All data presented in the Sustainability Statements are subject to the Non-financial reporting policy.

2 For the indexes based on age, nationalities, gender, inflow and outflow, the companies that are not integrated into the HR systems (approximately 5% of the total workforce) are not taken into account.

3 We do not employ people younger than 15 under DSM contract. We require our suppliers to not use forced labor or child labor according to our Supplier Code of Conduct.

4 In 2018, development training hours per employee were measured using a new standard with stricter definitions. Figures of previous years cannot be recalculated according to the new definitions, which means there are no relevant figures available for previous years.

5 Net sales per employee is for total DSM (= continuing and discontinued operations).

6 Excluding the temporary vitamin effect in 2018, see Profit in Integrated Annual Report 2019.

Brighter Living Solutions

	2021	2020	2019	2018	2017
Brighter Living Solutions sales as % of net sales[1]	64[2]	63	63	62[3]	62

1 All data presented in the Sustainability Statements are subject to the Non-financial reporting policy.

2 For a small percentage of sales (less than 0.7% of sales) classified as BLS, the environmental impact is considered 'best in class' together with other solutions.

3 Excluding the temporary vitamin effect in 2018, see Profit in Integrated Annual Report 2019.

Planet

	2021	2020	2019	2018	2017
Energy and greenhouse gas[1]					
Primary energy use (in PJ)	21.4	21.5	21.2	20.8	23.6
Energy efficiency improvement (%, year-on-year)	6.0	5.7	2.3	1.4	0.7
Greenhouse gas emissions scope 1 + 2, market-based (in CO_2 equivalents x million tons)	1.21	1.24	1.17	1.23	1.50
Greenhouse gas emissions scope 1 + 2, location-based (in CO_2 equivalents x million tons)	1.46	1.43	1.38	1.38	1.57
Total biogenic CO_2 emissions from combustion of biofuels (x million tons)	0.063	0.046[2]	-	-	-
Electricity purchased from renewable resources (%)	72	60	50	41	21
Total purchased renewable electricity (GWh)	961	748	632	446	229
Emissions to air					
Volatile Organic Compounds (x 1,000 tons)	4.1	3.2[3]	2.7	4.9	6.6
Nitrogen oxide (NO_x (x 1,000 tons)	0.4	0.3	0.4	0.5	0.7
Sulfur dioxide (SO_2) (x 1,000 tons)	0.01	0.02	0.06	0.09	0.28
Discharges to water and landfill					
Chemical Oxygen Demand discharges to surface waters (x 1,000 tons)	2.0	2.0	2.1	2.2	2.5
Waste recycled (in %)	86	85	86	83	84
(Landfilling) Non-hazardous waste (x 1,000 tons)	17	17	15	18	16
Total process-related waste (x 1,000 tons)	195	190[3]	192	177	-
Water					
Water withdrawal for non-once-through cooling (x million m^3)	26	24	23	22	23
Total water withdrawal, including once-through cooling (x million m^3)	106	108	111	114	114
Raw materials					
Renewable raw materials (in %)	15	15	15	14	15
Biodiversity					
Sites in or adjacent to protected areas (in %)	28	27	25[4]	-	-
Fines (in €)	141,000[5]	26,000	115,100	23,500	128,400
Non-monetary sanctions	5	18	2	6	4
Environmental incidents	73	79	60	71	101
Environmental complaints	39	51	58	53	35

1 All data presented in the Sustainability Statements are subject to the Non-financial reporting policy.

2 The total biogenic CO_2 emissions from combustion of biofuels is available as of 2020.

3 The 2020 figure has been restated. See Planet section (Other emissions to air and Waste) for details.

4 In 2019, Sites in or adjacent to protected areas was measured against a stricter definition. The figures of previous years could not be recalculated against the stricter definition, which means there are no relevant figures available for previous years.

5 The increase in environmental fines in 2021 is due to under-performance on energy reductions at one site in the Netherlands with an addendum to the Dutch energy efficiency covenant (addendum Meerjarenafspraak Energie-efficiëntie ETS ondernemingen, MEE-convenant).

Explanation of some concepts and ratios

General

Biosciences[1]
Biosciences are any of the sciences that deal with living organisms.

Brighter Living Solutions
Brighter Living Solutions (BLS) is DSM's program for the development of sustainable, innovative solutions with environmental and/or social benefits, creating shared value for our stakeholders. Brighter Living Solutions are products, services and technologies that, considered over their life cycle, offer a superior environmental impact (ECO+) and/or a superior social impact (People+) when compared to the mainstream alternative for the same application. The impact of Brighter Living Solutions can be realized at any stage of the product life cycle, from raw materials through the manufacturing process to potential re-use and end-of-life disposal.

More information and definitions can be found on the company website.

Eubiotics
The general term 'Eubiotics', is related to the Greek term 'Eubiosis' and relates to feed ingredients that support an optimal balance of microbiota in the gastrointestinal tract of livestock animals. They promote efficient gut performance so as to produce well-nourished animals that get the most from their feed, while at the same time sustaining their health and welfare and protecting the environment.

Integrated Reporting <IR> Framework – Value Creation model
The Value Creation diagram is based on the International Integrated Reporting Council's Integrated Reporting <IR> framework and gives an overview of how we create value for our stakeholders based on six capital inputs.

Human capital (People)
We employ skilled and talented people from diverse backgrounds. We strive to provide employees with a safe and inspiring workplace as well as with the tools and training they need to be effective and to develop their abilities. We reward employees with competitive benefit packages.

Societal & relationship capital (People)
We engage with various stakeholders to ensure close alignment between our aims and societal needs. We generate value for stakeholders outside our direct value chains of employees, suppliers, customers and end-users; these include employees' families, governments, local communities and civil society.

Natural capital (Planet)
We recognize that the world is an interconnected system of resources. This represents a responsibility and a business opportunity. We aim to improve the environmental impact of our supply chain, operations and products and services, while developing innovative solutions that deliver sustainability benefits to customers and beyond.

Financial capital (Profit)
Providers of capital – shareholders and bondholders, banks and the financial markets – supply funds that we use in our business to create value, driving growth and delivering sustainable returns.

1 Source: The Free Dictionary

Intellectual capital (Profit)
We manufacture and distribute high-quality products and services safely, efficiently and responsibly, and strive to develop valuable, collaborative and long-term relationships with customers and suppliers. We pursue open innovation, connecting and collaborating with partners and investing in start-ups.

Manufactured capital (Profit)
We have unique competences in Health, Nutrition & Bioscience and connect these to deliver innovative solutions that nourish, protect and improve performance.

People

Equal pay and gender pay gap
Equal pay is a legal requirement for men and women to be paid the same for performing the same or similar work or work that has been rated as being of equal value (by job evaluation). The gender pay gap zooms in on the difference between what men typically earn overall in an organization compared to women, irrespective of their role or seniority.

Frequency Index (FI)
The Frequency Index is a way to measure safety performance. The number of accidents of a particular category per 100 employees per year. DSM reports frequency indexes in the areas of Lost Workday Cases, Process Safety Incidents and Recordable injuries.

Inclusion Index
The Inclusion Index is a subset of items in the Employee Engagement (Pulse) Survey to specifically measure Inclusion. Inclusion is: “A working environment where all employees are a full and equal member of a team; where diverse perspectives are valued, and investment is made in their development; where people are respected and able to contribute as they are and not having to conform; where they can reach their potential, and where they can speak up without fear of retribution.”

Lives Reached
Lives Reached is a measure of consumers already reached through consumer products of third parties containing DSM products and solutions. This measure addresses key end-markets representing approximately 25% of DSM’s total sales. These end-markets cover our business segments — Nutrition, Materials and Innovation Center.

The number of Lives Reached is calculated for each market separately and then aggregated. As a business-to-business company, our products reach end-consumers via third parties, so calculations per market are performed at global level. Consumer touch points are assumed to be unrelated, and overlap is eliminated using statistical methods (De Morgan’s Law and Probability Theory — Independence). The actual overlap may be larger or smaller than calculated based on this assumption.

Key assumptions are used to perform these calculations and include DSM’s market share, total consumer markets, share of wallet and consumer consumption behavior. These assumptions are made based on external market data where available, supplemented with market and business intelligence insights.

For more information on Lives Reached, see the company website.

Living wage
The remuneration received for a standard working time by an employee in a particular place sufficient to afford a decent standard of living for the employee and his/her family. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing, and other essential needs, including provision for unexpected events.

LWC rate DSM-own
The Lost Workday Case (LWC) rate DSM-own is the number of lost workday cases per 100 DSM employees in the past 12 months: LWC rate = 100 * (number of LWCs (past 12 months) / average effective manpower (past 12 months)).

Occupational Health Case
This refers to any abnormal condition or disorder requiring medical treatment — other than one resulting directly from an accident — caused by, or mainly caused by, repeated exposure to work-related factors.

PSI rate
The PSI rate is the number of Process Safety Incidents per 100 DSM employees and contractor employees in the past 12 months: PSI rate = 100 * (number of PSIs (past 12 months) / average effective manpower including contractor employees (past 12 months)).

REC rate DSM-all
The REC rate DSM-all is the number of recordable injuries per 100 DSM employees and contractor employees in the past 12 months: REC rate = 100 * (number of RECs (past 12 months) / average effective manpower including contractor employees (past 12 months)).

Safety, Health and Environment (SHE)
DSM's policy is to maintain business activities and produce products that do not adversely affect safety or health, and that fit with the concept of sustainable development. The company does this by setting the following objectives: to provide an injury-free and incident-free workplace; to prevent all work-related disabilities or health problems; to control and minimize the risks associated with DSM's products for their whole life cycle and to choose production processes and products such that the use of raw materials and energy is minimized; to evaluate and improve DSM's practices, processes and products continuously in order to make them safe and acceptable to its employees, the customers, the public and the environment.

United Nations Global Compact
A strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption.

United Nations' Universal Declaration of Human Rights
On 10 December 1948, the General Assembly of the United Nations adopted and proclaimed the Universal Declaration of Human Rights. Following this historic act, the Assembly called upon all Member countries to publicize the text of the Declaration and "to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions, without distinction based on the political status of countries or territories."

Planet

Biofuel
A fuel which is derived from renewable organic resources, as distinct from one which is derived from non-renewable resources such as crude oil and natural gas.

Carbon footprint
The total set of direct and indirect greenhouse gas emissions expressed as CO_2eq.

Carbon price
The price that is paid to emit one ton CO_2eq into the atmosphere. DSM implements an internal carbon price of €100/t CO_2eq.

Circular economy
Circular economy refers to an economy that is restorative and in which materials flows are of two types: biological nutrients, designed to re-enter the biosphere safely, and technical nutrients, which are designed to circulate at high quality without entering the biosphere throughout their entire lifecycle.

CO_2
Carbon dioxide, a gas that naturally occurs in the atmosphere. It is part of the natural carbon cycle through photosynthesis and respiration. It is also generated as a by-product of combustion. Carbon dioxide is a greenhouse gas.

Chemical Oxygen Demand (COD)
COD is an indicator of the degree of pollution of waste water by organic substances.

Eco-efficiency
Eco-efficiency is a concept (created in 1992 by the WBCSD) that refers to the creation of more goods and services while using less resources and creating less waste and pollution throughout their entire life cycle. In the context of DSM's SHE targets, eco-efficiency relates specifically to the reduction of emissions and energy and water consumption, relative to the production volumes of DSM's plants.

Energy
Primary energy is energy that has not yet been subjected to a human engineered conversion process. It is the energy contained in unprocessed fuels.

Final (consumed) energy is the energy that is consumed by end-users. The difference between primary energy and final consumed energy is caused by the conversion process between the two as well as any transmission losses.

Essential for life
Essential for life refers to substances that have a proven beneficial nutritional or pharmaceutical effect when used at the officially recommended dose.

Greenhouse gas emissions (GHG)
DSM applies the Greenhouse Gas Protocol, which defines GHG as "atmospheric gases that absorb and emit radiation within the thermal infrared range and that contribute to the greenhouse effect and global climate change." We report GHGs based on their global warming potential over 100 years in carbon dioxide equivalent (CO_2eq).

Scope 1: Direct GHG emissions
Direct GHG emissions occur from sources that are owned or controlled by the company (i.e., emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.).

Scope 2: Indirect GHG emissions
Indirect GHG emissions relate to the generation of purchased energy (i.e., electricity, heat or cooling) consumed by the company. Purchased energy is defined as energy that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where the energy is generated.

Scope 3: Value chain emissions
Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Location-based emissions
Reflects the average GHG emissions intensity of grids on which electricity consumption occurs (using mostly national grid-average emission factor data). Corresponding emission factor: in most cases, the country emission factor.

Market-based emissions
Reflects GHG emissions from electricity supplies that companies have purposely chosen (or their lack of choice) and contracted. Corresponding emission factors:

- Supplier specific emission factor (provided by the supplier)
- Residual emission factor (country-based grid factor, corrected for allocated purchased electricity from renewable resources)

Greenhouse gas emissions (GHG) efficiency improvement
The GHGE efficiency improvement is the amount of GHG emissions per unit of output (specific emissions) in a given year compared to the specific emissions in the prior year.

GRI
The Global Reporting Initiative (GRI) has developed Sustainability Reporting Guidelines that strive to increase the transparency and accountability of economic, environmental, and social performance. The GRI was established in 1997 in partnership with the UN Environment Programme. It is an international, multi-stakeholder and independent institution whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines. These Guidelines are for voluntary use by organizations for reporting on the economic, environmental, and social dimensions of their activities, products and services.

Guarantee of origin (GO)
A guarantee of origin is defined in EU Directive 2009/28/EC as “an electronic document which has the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources as required by Article 3(6) of Directive 2003/54/EC.” The requirements of a GO are explained in Article 15 of the same Directive.

Levelized Cost of Energy (LCOE)
LCOE is a figure used to compare the average cost of energy coming from different sources. It measures the cost of energy production over the lifetime of an asset like a photovoltaic panel.

Loss of Primary Containment (LOPC)
Loss of Primary Containment is an unplanned or uncontrolled release of material from the container that is in direct contact with the material.

Mass-balance
Mass-balance accounting is a well-known approach that has been designed to trace the flow of materials through a complex value chain. The mass-balance approach provides a set of rules for how to allocate the bio-based and/or recycled content to different products to be able to claim and market the content as ‘bio’-based or ‘recycled’-based.

Mycotoxins
Mycotoxins are toxic compounds that are naturally produced by certain types of molds (fungi). Molds that can produce mycotoxins grow on numerous foodstuffs such as cereals, dried fruits, nuts and spices.

Net-zero emissions
The Intergovernmental Panel on Climate Change states: “Net-zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of net-zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon)”.

NO_x
Nitrogen oxides. These gases are released mainly during combustion.

Renewable resource
A natural resource which is replenished by natural processes at a rate comparable to, or faster than, its rate of consumption by humans or other users. The term covers perpetual resources such as solar radiation, tides, winds and hydroelectricity as well as fuels derived from organic matter (bio-based fuels).

SO_2
Sulfur dioxide. This gas is formed during the combustion of fossil fuels.

VOC
Volatile organic compounds. The term covers a wide range of chemical compounds, such as organic solvents, some of which can be harmful.

Water use and water consumption
Water use includes water used for ‘once-through cooling’ that is returned to the original water source after use. Water consumption is the portion of water used that is not returned to the original water source after being withdrawn.

Profit

General
In calculating financial profitability ratios, use is made of the average of the opening and closing values of balance sheet items in the year under review.

The financial indicators per ordinary share are calculated on the basis of the average number of ordinary shares outstanding (average daily number). In calculating Shareholders’ equity per ordinary share, however, the number of shares outstanding at year-end is used.

In calculating the figures per ordinary share and the ‘net profit as a percentage of average Shareholders’ equity available to holders of ordinary shares’, the amounts available to the holders of Cumulative Preference Shares are deducted from the profits and from Shareholders’ equity.

Adjusted net operating free cash flow
The cash flow from operating activities, corrected for the cash flow of the APM adjustments (see Note 2 to the Consolidated financial statements on Alternative performance measures), minus the cash flow of capital expenditures and drawing rights.

Capital employed
The total of the carrying amount of intangible assets and property, plant and equipment, inventories, trade receivables and other receivables, less trade payables, other current liabilities, investment grants and customer funding.

Capital expenditure
This includes all investments in intangible assets and property, plant and equipment.

Disposals
This includes the disposal of intangible assets and property, plant and equipment as well as the disposal of participating interests and other securities.

Earnings before interest, tax, depreciation and amortization (EBITDA)
EBITDA is the sum of operating profit plus depreciation and amortization. Adjusted EBITDA is the EBITDA adjusted for material items of profit or loss coming from acquisitions/divestments, restructuring and other circumstances that management deem it necessary to adjust in order to provide clear reporting on the development of the business.

Earnings per ordinary share
Net profit attributable to equity holders of Koninklijke DSM N.V. minus dividend on Cumulative Preference Shares, divided by the average number of ordinary shares outstanding.

High-growth economies
High-growth economies relate to the following regions: Latin America, Middle East, Asia (excluding Japan) and Eastern Europe.

Innovation sales
Innovation sales are defined as sales from products and applications that have been introduced in the last five years.

Net debt
Net debt is the total of current and non-current borrowings less cash and cash equivalents, current investments and the net position of derivatives.

Operating working capital
The total of inventories and trade receivables, less trade payables. See also Working capital.

Organic sales growth
Organic sales growth is the total impact of volume and price/mix. Impact of acquisitions and divestments as well as currency impact are excluded.

Return on capital employed (ROCE)
Adjusted operating profit from continuing operations as a percentage of average capital employed.

Total shareholder return (TSR)
Total shareholder return is capital gain plus dividend paid.

Working capital
The total of inventories and current receivables, less current payables. See also Operating working capital.

List of abbreviations

ADR	American Depositary Receipts
AFM	The Dutch Authority for the Financial Markets
APM	Alternative performance measures
CDP	The new name for the Carbon Disclosure Project
Cefic	Conseil Européen des Fédérations de l'Industrie Chimique (European Chemical Industry Council)
CGU	Cash Generating Unit
COA	Corporate Operational Audit department
COD	Chemical Oxygen Demand
CPLC	Carbon Pricing Leadership Coalition
CRA	Corporate Risk Assessment
CRP	Corporate Research Program
CSIRO	The Commonwealth Scientific and Industrial Research Organisation
CSR	Corporate Social Responsibility
DHA	Docosahexaenoic Acid
DNP	DSM Nutritional Products
DSGC	Dutch Sustainable Growth Coalition
DSP	DSM Sinochem Pharmaceuticals
EBIT	Earnings Before Interest and Taxes (Operating Profit)
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EEI	Energy Efficiency Improvement
EFRAG	European Financial Reporting Advisory Group
EPA	Eicosapentaenoic Acid
EPS	Earnings per share
EVP	Executive Vice President
FIFO	First in, first out
FTE	Full-time equivalent
FVTPL	Fair value through profit and loss
FVOCI	Fair value other comprehensive income
GHG	Greenhouse gas
GHGE	Greenhouse gas emissions
GRI	Global Reporting Initiative
HMPE	High modulus polyethylene
IAS	International Accounting Standards
ICF	Internal Control Framework
IFRIC	International Financial Reporting Interpretation Committee
IFRS	International Financial Reporting Standards
IPCC	Intergovernmental Panel on Climate Change
LCA	Life Cycle Assessment
LoR	Letter of Representation
LTI	Long-Term Incentive
LWC	Lost Workday Case
NCI	Non-controlling interests
NGO	Non-Governmental Organization
NPS	Net Promoter Score
OCI	Other Comprehensive Income
PDN	Stichting Pensioenfonds DSM Nederland
PPA	Purchase Price Allocation; also Power Purchase Agreement
PPE	Personal Protective Equipment; also Property, Plant and Equipment
PSI	Process Safety Incident
R&D	Research & Development
REACH	Registration, Evaluation, Authorisation and Chemicals Restriction of Chemicals
RFM	Resins & Functional Materials and associated businesses
ROCE	Return on Capital Employed
SDG	Sustainable Development Goal
SHE	Safety, Health and Environment
SHIBOR	Shanghai Interbank Offered Rate
STI	Short-Term Incentive
SUN	Scaling Up Nutrition Movement
TCFD	Taskforce on Climate-related Financial Disclosures
TSR	Total Shareholder Return
UHMWPE	Ultra-high-molecular-weight polyethylene
UN	United Nations
VOC	Volatile Organic Compound
WBCSD	World Business Council for Sustainable Development
WEF	World Economic Forum
WFP	United Nations World Food Programme