

ROYAL DSM: GROWTH & VALUE

PURPOSE LED, PERFORMANCE DRIVEN.

**CREATING
BRIGHTER LIVES
FOR ALL.**



THE NEXT STEP OF ROYAL DSM.

PURPOSE LED, CONTRIBUTING TO A BRIGHTER WORLD.

This booklet provides an overview of Royal DSM's next step in our journey as a purpose-led, performance-driven company. For more than a decade, we have distinguished ourselves by embracing sustainability and providing value for all stakeholders simultaneously across the three dimensions of people, planet and profit. Now we make a decisive next step as a **purpose-led company**, contributing to a brighter world for all with our science-based solutions. We address all of the above in four sections.

WHY - PAGE 8

Our purpose encompasses why we do what we do and outlines our reason for existence:
Creating brighter lives for all.

WHAT - PAGE 14

What we do is laid out in our strategy:
Growth & Value - Purpose led, Performance driven.

HOW - PAGE 26

How we achieve our strategy is defined by our ways of working:
Doing something meaningful, every day.

NOW - PAGE 38

We are already making a difference, right now.

CREATING BRIGHTER LIVES FOR ALL.

**CREATING VALUE FOR ALL OUR
CUSTOMERS, EMPLOYEES,
SHAREHOLDERS, AND SOCIETY
AT LARGE.**

We are already recognized as a purpose-led company, creating value across three key dimensions simultaneously, and considering people, planet and profit as equally important.

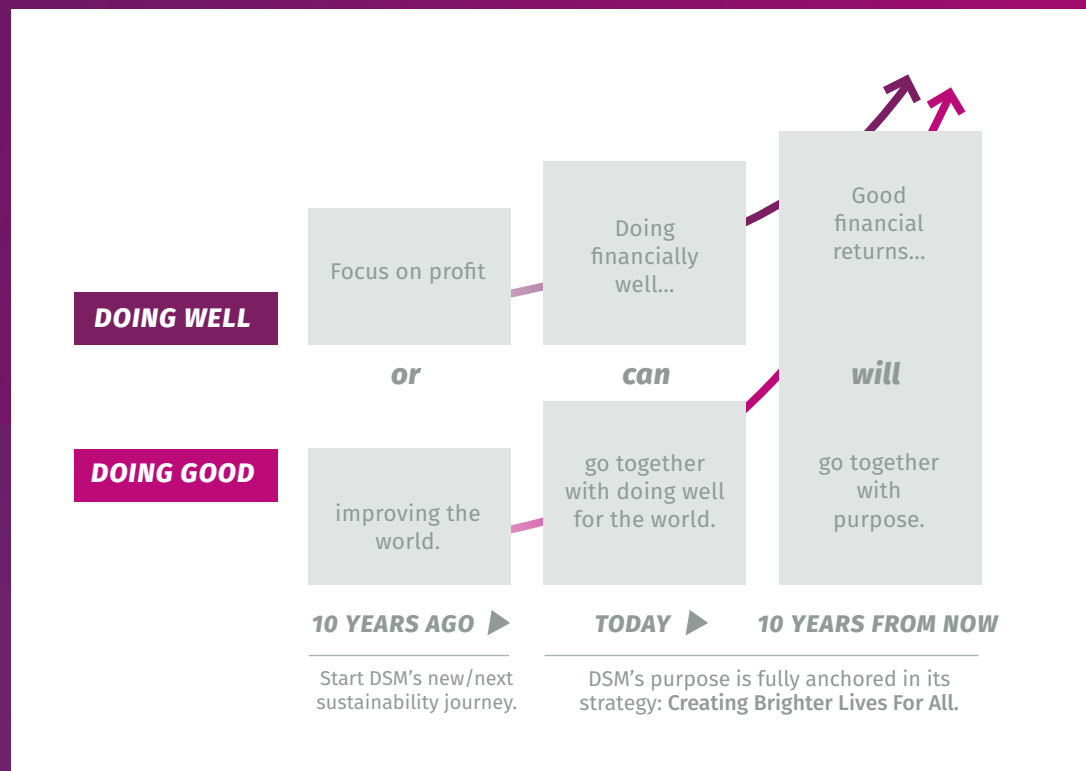
Our scientific expertise and innovative power are helping us answer some of the world's biggest challenges – supporting our business growth and providing value to all our stakeholders: customers, employees, shareholders and society at large.

We raise the bar higher and use our unique position to inspire all our people and partners to achieve more together and create brighter lives for all.



THE WORLD IS CHANGING.

Ten years ago, the general belief was that, as a company, you either focused on profit or improving the world, but that you couldn't do both.



Today, we see more and more companies, like DSM, proving that doing well financially can go together with doing well for the world. And this will only become more important. Within the next ten years, good financial results will have to go hand in hand with purpose, otherwise companies will lose their license to operate.

That's why, at DSM, our purpose is fully anchored in our strategy: **Creating Brighter Lives For All.**

Customers prefer to work with suppliers who share their values.

Employees: Attracting, retaining and developing talent with the skills we need, depends on our ability to clearly articulate our purpose and deliver high performance. This is especially important for the millennial workforce.

Society ultimately determines our license to operate. Far and wide, governments are introducing or changing legislation, ensuring by law that companies deliver value for all stakeholders, and not just their shareholders. Millennials will soon make up most of the world's consumers; more than ever, people will choose products and solutions from companies with strong ethics and purpose-orientated approaches.

Businesses will only be successful in the long term if they take steps to futureproof their operations, such as by applying carbon pricing. They will need to balance profitable growth with playing a positive role in the world. They have the scale and means to shape how we live and work, and with this comes increased responsibility to be a force for good.

By ensuring these objectives go hand in hand, we will attract the right investors, the best talent, the most innovative customers, and the right relationships with partners and governments around the world.

WHY.

OUR PURPOSE ENCOMPASSES WHY WE EXIST.

A strong society is more than just a strong economy. Making money is a means to an end, not an objective in itself. The objective must be a healthy, functioning society for all.

The influence of private companies has grown enormously over the past 70 years. The harm companies can do, but also the good, is impacting our planet and its people on a scale that has never been seen before. And it is private companies that, with their technological expertise and capacity for innovation, can provide answers to the world's biggest challenges.

With increased impact comes increased responsibility. The private sector as a whole needs to deliver value for all stakeholders – not just employees and customers, but the world's communities and the individuals who live in them.

As a business, we have to stand up and be counted – not just for our own future, but for the one we can help build for generations ahead.

"We cannot be successful, nor even call ourselves successful, in a society that fails."

Feike Sijbesma, CEO Royal DSM

850M

HUNGER VS. OBESITY:

Over 850 million people suffer from hunger, while over 650 million people are obese. Excluding ~ 1 billion malnourished people suffering from so-called "hidden hunger", excluding > 1 billion overweight people.

140M

CLIMATE CATASTROPHE:

>140 million people could be forced to migrate due to climate change. Excluding the potential risk of even hundreds of millions of people more who could be affected and feel forced to migrate.

400%

RESOURCE CONSUMPTION:

Our demand for resources is expected to triple from up to 50 billion tons in 2014 to reach 130 billion tons by 2050. This is an overuse of the earth's total capacity by more than 400%. Adding to the issue, more than 90% of used materials are discarded rather than cycled back into the economy. That means valuable resources are literally going to waste. The circular economy could make better use of our planet's limited resources and generate extra economic output of \$4.5 trillion globally by 2030.

WHY. SOLUTIONS FOR A BETTER WORLD.

TRANSFORMING AND PERFORMING.

With our unique science-based competences, DSM has created a strong platform for growth and is ideally positioned to capture the growth opportunities offered by the global megatrends and Sustainable Development Goals (SDGs), with a particular focus on developing innovative solutions addressing Nutrition & Health, Climate & Energy and Resources & Circularity.

Being purpose led also means that we will continue to transform, just as we have throughout history. From our origins as a Dutch coal mining company, we have evolved over the years into a bulk chemical company into a global purpose led, science-based company in Nutrition, Health and Sustainable Living. We will continue to deliver science-based, sustainable and scalable solutions. Our innovations will create brighter lives for people today and generations to come.





OUR PURPOSE IS TO CREATE BRIGHTER LIVES FOR ALL.

We use our bright science to create solutions for people today and generations to come.

We use our scientific competences to deliver transformation at scale for as many people as possible, within the constraints of the world's resources.

We are open and collaborative, embracing diversity everywhere.

We are daring. We have the courage to rethink the system and create opportunity for everyone. We want to redefine how we live and work to create a more sustainable, prosperous and fair society.

Ultimately, we aspire to be a company for all, creating value for all stakeholders – customers, employees, shareholders and society at large – and building a stronger legacy and brighter future for generations to come.

WHAT.

WHAT WE DO IS LAID OUT IN OUR STRATEGY.

We are sharpening our focus and connecting our purpose, strategy and culture in order to inspire all our people and all our stakeholders to achieve more together.

A PURPOSE-LED STRATEGY COMES WITH RECOGNITION.

**AND SETS THE SCOPE
FOR FURTHER
GROWTH AND EVOLUTION.**

We are evolving into a purpose-led, science-based company in Nutrition, Health and Sustainable Living.

We have created a strong platform for growth, centered on developing innovative solutions addressing Nutrition & Health, Climate & Energy and Resources & Circularity.

Increased customer centricity and large innovation projects will enable above-market growth, while we will remain focused on cost control and operational excellence, allowing us to accelerate profit and cash generation.



WHAT. PURPOSE LED, PERFORMANCE DRIVEN

DSM's STRATEGY: **GROWTH & VALUE - PURPOSE LED, PERFORMANCE DRIVEN.**

OUR COMPETENCES AND PURPOSE...

DSM's KEY COMPETENCES + ADDRESSING MEGATRENDS AND THE UN SDGs:

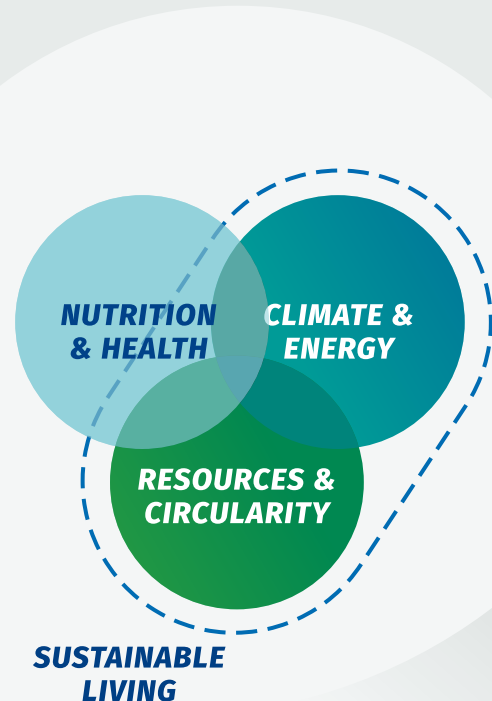


MEGA TRENDS



PROVIDE GROWTH OPPORTUNITIES IN THE FOCUS DOMAINS...

A SCIENCE-BASED COMPANY IN HEALTH, NUTRITION AND SUSTAINABLE LIVING:



CREATING A GROWTH COMPANY...

COMPANY GROWTH



WITH TARGETS THAT UNDERPIN OUR MISSION.

OUR 2019-2021 TARGETS:

HIGH SINGLE-DIGIT % ANNUAL INCREASE ADJ. EBITDA

~10% AVERAGE ANNUAL INCREASE ADJ. NET OPERATING FREE CASH FLOW



VALUE-CREATING M&A

More information on our strategy can be found in the annex.

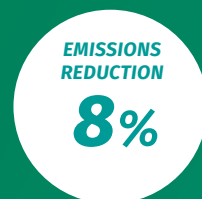
WHAT. PURPOSE LED, PERFORMANCE DRIVEN

WE HAVE ALWAYS BEEN A COMPANY WITH AMBITION.

A BUSINESS THAT DOES THINGS DIFFERENTLY.

Both our financial targets and sustainability ambitions reflect this. They push us to go farther and deeper.

2017 realization



GHG efficiency improvement (vs. 2015)



Energy efficiency improvement (vs. 2015)



Purchased renewable electricity



Employee engagement favorable score



Safety: frequency recordable index



Brighter Living Solutions

2021 / 2030 ambitions



(vs. 2016)



Business growth enabler

DEVELOP AND INTRODUCE NEW INNOVATIVE SUSTAINABLE SOLUTIONS WITH A FOCUS ON:

- NUTRITION & HEALTH - CLIMATE & ENERGY - RESOURCES & CIRCULARITY - (E.G. PROJECT CLEAN COW, VERAMARIS, NIAGA®, ETC.)

WHAT. PURPOSE LED, PERFORMANCE DRIVEN



WE WILL ONLY BE SUCCESSFUL IF WE MAKE CHANGE HAPPEN THROUGH THREE ACTIONS:

IMPROVE.

Improve and adapt our own operational impact by further improving safety, decreasing our emissions and stepping up our use of renewable energy.

ENABLE.

Enable our customers and partners to deliver sustainable and healthy solutions for the planet and society.

ADVOCATE.

Advocate for the future we believe in and fully accept our responsibilities as an active part of society.

DSM BRIGHTER LIVING AGENDA.

We recognize the increased scale and impact of private companies in the global economy.

Therefore, we take an integrated approach to our responsibilities for the benefit of all stakeholders: customers, employees, society and shareholders.

Our Brighter Living Agenda brings many existing purpose-led initiatives into focus and creates an actionable framework for further engagement with our stakeholders.

IMPROVE.

NUTRITION & HEALTH

Reducing occupational safety incidences and promoting health and well-being in our own workforce.

Occupational Safety:

- <0.25 Safety Frequency Recordable Index by 2021

Employee well-being programs:

- Vitality
- Skincare protection
- Vitamin supplementation

CLIMATE & ENERGY

By 2030, our goal is to reduce our own carbon footprint by:

- 30% absolute reduction in GHG emissions (scope 1 and 2)
- Reducing scope 3 GHG emissions (in our value chain), starting off with suppliers
- Purchasing 75% of our electricity from renewables
- Extending breadth and depth of internal carbon pricing

RESOURCES & CIRCULARITY

Unlocking more value from the limited resources that are available by:

- Executing Responsible Care Plan addressing waste, water and emissions
- Embedding circular and bio-based thinking into sourcing, operations, innovation and portfolio

ENABLE.

NUTRITION & HEALTH

Enabling healthy living and diets for all:

- Replacing salt and sugar
- Addressing nutrient deficiency amongst at-risk populations (Africa Improved Foods, World Food Programme, Nutrition Improvement)
- Fortifying processed foods
- Sustainable animal proteins
- Plant-based proteins
- Advancing biomedical materials
- Preventing injuries from cuts, stabs and ballistic threats
- Skin care

CLIMATE & ENERGY

Enabling the low-carbon economy through solutions that help customers cut emissions:

- Limiting the use of fossil fuels (biofuels, solar)
- Enabling the future of mobility (weight reduction in cars, biofuels)
- Improving digital infrastructure and mobile devices
- Reducing enteric methane emissions from cattle

RESOURCES & CIRCULARITY

Enabling the transition toward a circular & bio-based economy:

- Reduction of landfill (Niaga®)
- Increased use of bio-based ingredients
- Replacing solvent-based coatings with waterborne and powder coatings
- Solutions to reduce food loss and waste (Pack-Age®, enzymes)
- Eliminating waste from prototyping (3D printing)
- Protecting life in the ocean (Veramaris, aquaculture feed)

ADVOCATE.

NUTRITION & HEALTH

Advocating healthy diets within planetary boundaries.

Active in partnerships to fight malnutrition:

- World Food Programme
- Global Alliance for Improved Nutrition
- World Vision
- Scaling Up Nutrition
- Unicef
- Vitamin Angels

Active in partnerships to address sustainable and healthy nutrition:

- Food Reform for Sustainability and Health (FReSH), part of World Business Council for Sustainable Development (WBCSD)
- European Institute of Innovation and Technology (EIT) Food
- World Economic Forum (WEF)
- Sustainable Food Initiative

CLIMATE & ENERGY

Advocating climate action and building the movement for a low-carbon economy. Leading roles/engage in:

- World Bank Carbon Pricing Leadership Coalition
- WEF CEO Climate Leaders
- WBCSD Climate & Energy
- Task Force on Climate-related Financial Disclosures
- Renewable Energy 100 (RE100)
- United Nations Global Compact

RESOURCES & CIRCULARITY

Advocating the transition from a linear to a circular and bio-based economy. Leading roles/engage in:

- WEF Platform for Accelerating the Circular Economy (PACE)
- WBCSD Factor10
- Circle Economy, Circular Economy 100 (CE100)
- Ellen MacArthur Foundation

WHAT. PURPOSE LED, PERFORMANCE DRIVEN

PURPOSE DRIVES PERFORMANCE.

By keeping our purpose at the forefront, we show that it's not only possible, but that it's also beneficial to grow sustainably. To deliver on this, we focus on improving our own impact, enabling customers and partners to deliver sustainable and healthy solutions, and advocating to create a sustainable business environment.

What we will achieve:



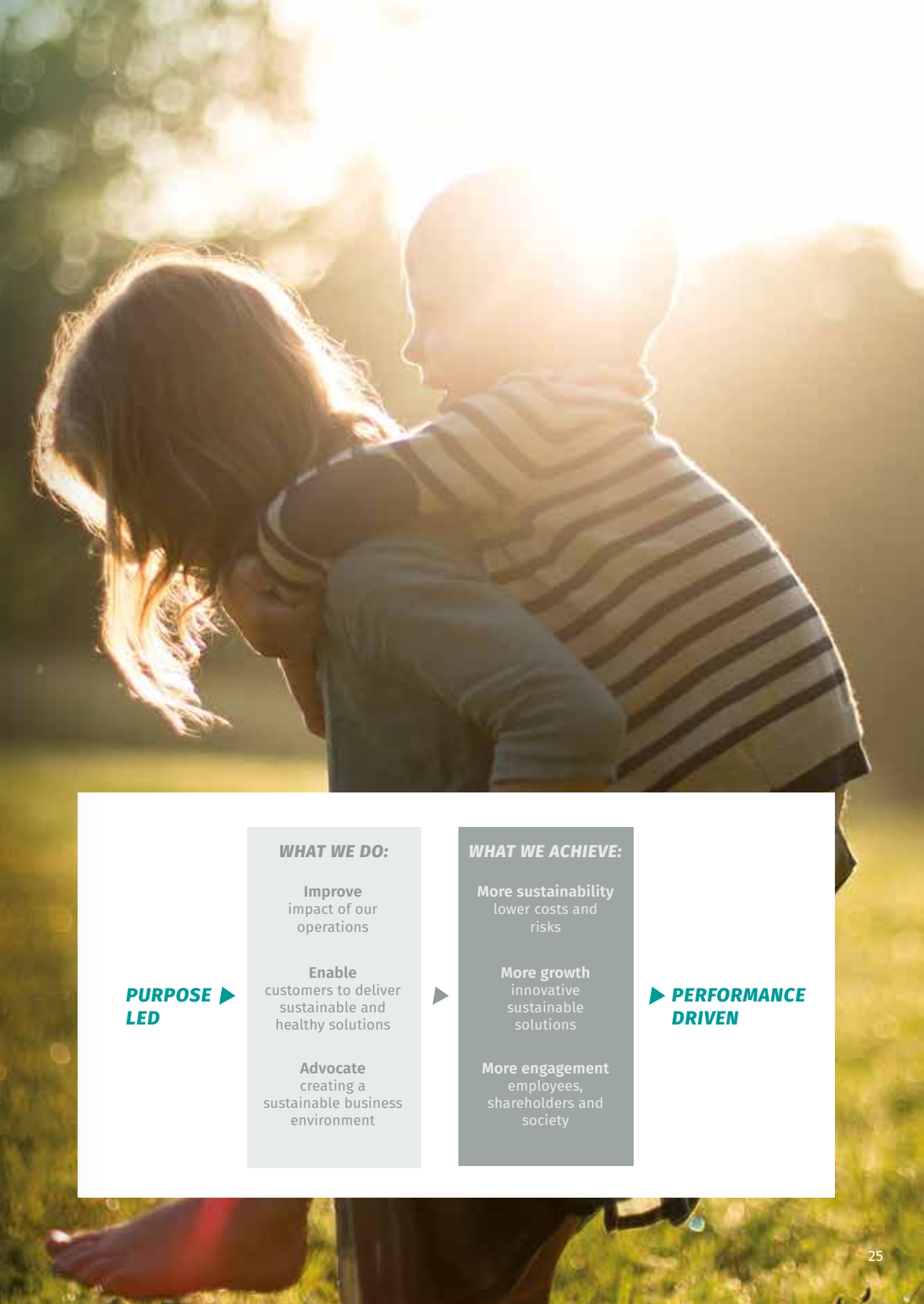
By futureproofing our operations and reducing risk and cost by working with our value chains to reduce emissions and deal responsibly with energy and other resources.



By identifying consumer needs, and responding with differentiated science-based innovation, we can make a collaborative contribution to the Sustainable Development Goals together with our customers.



By building employee motivation, optionality for impact investments, Environmental, Social and Governance (ESG) -committed shareholders and advocating for industry and society.



HOW.

HOW WE ACHIEVE OUR PURPOSE AND STRATEGY IS DEFINED BY OUR WAYS OF WORKING.

Working at DSM means Doing Something Meaningful, every day. We are guided by our three ways of working, which are underpinned by the principles of our purpose.

DOING SOMETHING MEANINGFUL, EVERY DAY

CUSTOMER PASSION INSPIRES INNOVATION.

'Customer-first' mindset - external orientation

ACCOUNTABILITY AND AGILITY SPARK SUCCESS.

Speed, performance and delivery

INCLUSIVENESS BRIGHTENS OUR FUTURE.

Diverse people and perspectives, collaboration and connectivity

HOW. HOW WE WILL ACHIEVE OUR PURPOSE

WE CANNOT DO THIS ALONE.

We are recognized as a positive contributor to a changing world – we achieved this thanks to our employees and shareholders, who are committed to creating a better planet for all.

But we cannot do this alone.

By closely collaborating with our customers, we create partnerships and connections that help us solve the biggest global challenges to generate a fair and more prosperous society for all.

**WITH OUR
EMPLOYEES**

**WITH OUR
CUSTOMERS**

**WITH OUR
SHAREHOLDERS**

**FOR
SOCIETY**

With and for our stakeholders, we will create a stronger legacy and brighter future for generations to come.

HOW. HOW WE WILL ACHIEVE OUR PURPOSE

WITH OUR CUSTOMERS.

PIONEERING SOLUTIONS THAT ENABLE BRIGHTER LIVING.

We share our customers' ambition to make the world a better place. Our bright minds and solutions solve our customers' challenges and help build their reputation by driving brighter living for their consumers. Our customers value our solutions and our capacity, as an innovation thought leader, to draw together experts and know-how from across the public and private spheres, in order to jointly bring nutrition, health and sustainable living solutions to market. In this way, we can build customer loyalty through shared values.

Although our bright-science-driven solutions are not always immediately visible to consumers, they are of key strategic importance to our customers. It is thanks to these innovative DSM-solutions that our customers are able to differentiate their products and directly address the needs of their own consumers. This is reflected in our high Net Promoter Score (NPS). Ever increasing, our score clearly demonstrates the loyalty customers feel toward DSM, while also highlighting the underlying values that drive our partnerships.

In addition to the high-quality standards and sustainability benefits of our products and services, our customers also value our thought leadership and our formidable capacity for innovation. We strive to understand the wider ecosystem our customers operate in, to anticipate the future needs of their consumers and society. It is through this customer-centric approach that we are able to become a more valued strategic partner to organizations around the world.

OUR PEOPLE MAKE THE DIFFERENCE

The human interaction we have with our customers is the key differentiator in our customer-centric approach. Our bright minds and skilled professionals match our customers' needs with the right solutions – today and for generations to come. Our people-led approach resonates with individuals throughout our customers' organizations:

“We're proud to have a bold commitment from DSM to power their Apple production with 100% renewable energy.”

Lisa Jackson, Vice President, Environment, Policy and Social Initiatives and Member of the Executive Committee, Apple

“We're most appreciative of DSM's top management and its relentless pursuit to engage us in both short- and long-term issues.”

Shank Hu, Innovation Assistant President, Yili Group (China's largest dairy company)

“DSM has figured out how to be profitable and, at the same time, improve society. This is the type of company we want to work with.”

Chris Naegli, Executive Director, Thermal Systems, Resins and Purchasing, General Motors

PERSEVERANCE THROUGH PURPOSE LED, PERFORMANCE DRIVEN

Around the world, our customers are facing similar challenges and, like us, are thinking about tomorrow, today. They know that gradual, incremental improvements only solve part of the problem. Breakthrough innovations and radical changes are needed – having a partner like DSM with the same passion and drive for sustainable solutions is essential for fast, effective collaboration. Only together can we create a healthier, more sustainable future for the planet and the global population.

There are many great examples of where our market understanding, combined with the collective bright minds of our colleagues and partners and a persistent drive for change, has led to new business and brighter living. Some of these examples are detailed later in this booklet.

HOW. HOW WE WILL ACHIEVE OUR PURPOSE

WITH OUR EMPLOYEES.

DOING SOMETHING MEANINGFUL, EVERY DAY.

Empowering people with a strong sense of purpose is the best way to unleash creativity. Working at DSM is working toward something bigger: economic prosperity, environmental progress and social advances. These three dimensions – People, Planet and Profit – form the basis for our Code of Business Conduct, which defines how we do business and interact with all our stakeholders.

Putting the customer first is key to who we are. We inspire one another to challenge the status quo and turn bright solutions into transformational change. These bright solutions are rooted in a diversity of thought and background – altogether, we have 100 nationalities working across 45 countries, all passionate about making the planet a better place.

A healthy and safe working environment for everyone, including our contracted colleagues, is our highest priority. Our ambition is to be injury and accident free, and we work hard to realize this goal. No ifs, no buts, no maybes: safety is DSM's foundation.

What's more, we invest in a culture that enables each of us to contribute, not only through our jobs but also through experiences, such as short-term projects or volunteering, and to be recognized for our contribution. With 75% employee engagement levels, we are on the right track. And we will continue to measure and steer further progress.

DSM stands for Doing Something Meaningful, every day. It's a place where everyone has the opportunity to discover their true potential – and gain the ultimate sense of pride and purpose. It's this sense of purpose that attracts, develops and engages our employees.

Our engagement does not stop when we leave work. Rather, we are inspired every day to support the communities around us, not only through our work, but also through our community and volunteering programs.

“Being a One Young World ambassador on behalf of DSM is a life-changing experience. You'll have the chance to realize that we young people are the ones responsible for a better planet – and because of this, we need to be better citizens of this world, and we need to be better people. Together, we can walk toward a sustainable future.”

Matheus Partel, DNP Brazil

“Proud of the work we do as DSM, amazed by the great people we have on our team, humbled by the hurdles ahead and determined to find ways to overcome them.”

Jill Cohen, Global Director Marketing and Sales, DSM Additive Manufacturing



HOW. HOW WE WILL ACHIEVE OUR PURPOSE

WITH OUR SHAREHOLDERS.

PROFIT WITH A PURPOSE.

We attract investors with the same core principles, creating a movement for societal transformation. In doing so, we futureproof our own business.

DOING WELL BY DOING GOOD

Ten years ago, companies were being challenged to choose between doing well and doing good. Thankfully, over time, this has changed. Investors now increasingly look beyond only financial returns. Around the world, funds worth more than \$23 trillion combined are currently invested in stocks selected on their Environmental, Social and Governance performance (ESG funds) – and this is growing at a double-digit rate.

At DSM, we fully believe that good financial returns must go together with acting with purpose. DSM Brighter Living Solutions now account for 62% of our global sales. Each day, our talented scientists and innovators are finding, or refining, ways to pursue sustainable development. Their ground-breaking solutions are behind a decade of growth in which we have outperformed the markets by roughly doubling our dividend price and almost tripling our share price.

“Profits with a purpose are vital for survivability and profitability.”

Larry Fink, CEO, BlackRock

HOW. HOW WE WILL ACHIEVE OUR PURPOSE

FOR SOCIETY.

TRANSFORMING OUR WORLD.

Clearly, transforming the world is not a task we can take on alone. At DSM, we work side by side with governments, international organizations, industry bodies, peers and even competitors to fast-track a brighter future, advocating across the three domains of Nutrition & Health, Climate & Energy and Resources & Circularity. At DSM, everything we do is geared toward more sustainable living – now and in the future. That means supporting fair, inclusive societies where people can live well while respecting the limits of our planet.

Our science has already made a big impact. For the third consecutive year, Fortune magazine included DSM in its 'Change the World' list due to our measurable impact on tackling malnutrition and climate change. We are a company that is doing well by doing good. From helping people live active lives for longer and maximizing human and animal nutrition, to rethinking materials to make them greener, kinder and smarter – our technologies and talent are brightening lives the world over, while also demonstrating that being responsible can also be profitable.

DELIVERING HEALTHIER FOOD

For 11 years, DSM's partnership with the World Food Programme has helped deliver nutritious food to more than 31 million beneficiaries around the world. In parallel, our work with UNICEF, and more recently the humanitarian nutrition think-tank, Sight and Life, is delivering healthier food to an estimated 400,000 children, starting with a micronutrient powder pilot program in Nigeria.

ACTING ON CLIMATE CHANGE

When it comes to climate, we're an action taker, solutions enabler and movement maker. For example, DSM has stepped up as part of the RE100, a campaign joined by companies who, like us, are committed to scaling renewable energy. We also lead the charge when it comes to advocating effective carbon pricing policies by governments and companies.

RESOURCES & CIRCULARITY

DSM is committed to safeguarding the future availability of natural resources and unlocking more value from the limited resources that are available. Together with our peers and with industry experts, we are developing closed-loop, circular solutions that maintain materials and products at their highest value for the longest possible time. Decovery® and Niaga® are examples of emerging technologies that are contributing to the transition toward a circular economy.

GLOBAL COMMUNITY

We have a unique opportunity to deliver solutions that directly address the United Nations Sustainable Development Goals and create value for the global community. By sharing best practices and scientific knowledge, DSM is collaborating with the Ellen MacArthur Foundation, Circle Economy, WBCSD and DSGC to develop new products that will contribute to solving the challenges facing today's society.

Our purpose is to create brighter lives for all. We use our bright science to create solutions for people today and generations to come.

NOW.

WE ARE ALREADY MAKING A DIFFERENCE, RIGHT NOW.

The following stories give an insight into our purpose and performance in action around the world. They span our focus areas of Nutrition & Health, Climate & Energy and Resources & Circularity.

While showcasing very different innovations across very different geographies, one thing our case studies all show is that purpose and profitability can – and do – go hand in hand. By applying the very best science, by having a clear vision, by having a purpose that unites us all, together with our partners, we persevere and we achieve something incredible.

We thank our DSM colleagues for these stories, and we invite all to use them to inspire others in our purpose-led, performance-driven culture.

WE ARE ALREADY REACHING

~2.5

BILLION PEOPLE WORLDWIDE.

A WIN-WIN FOR OCEANS AND HEALTH.



VERAMARIS®

As consumers become increasingly health conscious, many look to include more fish in their diet. Oily fish, especially salmon, is a rich source of omega-3 fatty acids and protein. Since 1961, consumption of fish has grown twice as fast as the world's population. Overfishing has placed extreme pressure on wild fish stocks; the main cause of biodiversity loss in our oceans.

COULD ALGAE HOLD THE KEY?

The aquaculture industry has expanded in response to the growing demand for fish. In 2015, the industry reached a milestone, producing as much farmed fish as fish caught in the oceans.

While aquaculture nutrition and technology have improved, one dilemma remains unsolved: almost 20% of the global fish catch is processed into fish oil and fishmeal to feed farmed fish. This is because wild-caught fish has historically been the sole source of omega-3 fatty acids.

At Veramaris, engineers and scientists from its parent companies DSM and Evonik have together pioneered a solution: to make natural marine algae a high-quality source of omega-3 for aquafeed and a complete replacement for EPA and DHA from wild-caught fish.

Algal oil by Veramaris is highly concentrated and helps to resolve the global omega-3 shortage, enabling aquaculture to continue producing healthy seafood.

A MORE SUSTAINABLE MODEL

With the help of natural marine microalgae, we bypass the food chain. Our omega-3 from microalgae is an ideal high-quality alternative to fish-based ingredients for sustainable animal nutrition. Feeding Veramaris omega-3 oil directly to animals helps protect marine habitats and conserve the biodiversity of our oceans.

PURPOSE LED

Our commitment encourages industry players to adopt sustainable feed production as a worldwide standard. By advancing an alternative to traditional seafood sources of EPA and DHA, Veramaris is contributing to preserving oceans, seas and marine resources for generations to come.



PERFORMANCE DRIVEN

The initial annual production capacity of the Veramaris plant will meet roughly 15% of the total current annual demand for EPA and DHA from the global salmon aquaculture industry. To drive a positive change in feed production and food consumption, Veramaris is working extensively with all stakeholders along the value chain, including feed producers, farmers, retailers and NGOs.

Pioneering collaborations have already enabled key players in aquaculture to raise Atlantic salmon on diets totally free from marine ingredients, using Veramaris' algal oil as a complete replacement for fish oil.

100% RECYCLABLE CARPETS.

NIAGA®

With 95% of carpet being burned or sent to landfill after use, this seemingly harmless household item is among the top-five contributors to landfill and incineration in Europe and North America. Recycling carpet is difficult and costly – separating the many component materials is highly complex, involving hazardous chemicals.

DISRUPTING THE NORM

In a break from conventional manufacturing, our DSM-Niaga team has been able to design a carpet that uses only pure materials, requires 95% less energy to manufacture than mainstream lamination processes, and can easily be recycled. Specifically, at the end of its product life, the carpet can be turned back into new product. What's more, the carpets are hypo-allergenic, odor free, and flame and stain resistant. And, with a clear need for sustainable solutions in other categories of household products, revolutionizing carpet production is just the tip of the iceberg.

WHAT'S NEXT?

We've led a targeted advocacy program to change – and improve – the face of carpet production around the world. This issue-led approach has already helped the state of California to set a new 24% carpet recycling goal by 2020. Having made a strong entry into the carpet segment, DSM-Niaga is working hard to deliver circular production solutions to the mattress and laminated panel segments, among other categories.

PURPOSE LED

Niaga® is proving the advantages of circular thinking, not only by reducing landfill pressures and energy usage, but also by improving consumer health.

With a combination of advocacy and intelligent commercial strategy, Niaga® can have a major impact by helping to reverse long-standing industry approaches and reduce the harmful effects of outdated manufacturing.



PERFORMANCE DRIVEN

With the market for circular carpet solutions estimated to be worth \$21 billion worldwide, the business case is compelling. As the first solution of its kind, Niaga® is well placed to access this market. Because transforming an industry involves more than just 'selling', the DSM-Niaga team leveraged a full range of marketing techniques (influencer marketing, branding, consumer pull), with New Business Model thinking (selling machines, online selling, business-to-consumer possibilities) employed to push for a fast transition.

This detailed scenario thinking was – and will continue to be – the driver of future developments.

COSMETICS THAT CARE.

ALPAFLOR®

By the end of the 2000s, the personal care market was undergoing major changes. Consumers wanted greater transparency around cosmetics ingredients, particularly regarding their effects on health and the environment. Our customers, in turn, were looking for more natural and sustainable alternatives that could meet the rising expectations of end consumers.

BIOACTIVE INGREDIENTS

As a pioneer in developing healthy and ethically sourced bioactive ingredient solutions, the DSM Personal Care business in Switzerland uses the edelweiss flower for its ability to withstand large variations in temperature and dehydration. Our scientists extracted the plant's unique compounds in order to develop new, sustainable bioactive ingredients for skin care customers.

The team had a clear vision for its new product: sustainability (including fair trade), traceability and quality. We put in place measures to guarantee the traceability of the Alpaflor® range to cosmetics customers. In order to demonstrate that the product is fully organic and sustainable, we traced the origins of the final product back to the plant's seed.

A TRANSPARENT, TRACEABLE VALUE CHAIN

Taking control of the entire value chain – from natural source to supply – enables the full transparency and traceability of our products. These qualities can be used by our customers to enhance their value proposition with end consumers.

PURPOSE LED

To protect biodiversity and the natural landscape, we selected only organically farmed edelweiss plants. Furthermore, the team set up a long-term supply agreement with a cooperative of edelweiss farmers, guaranteeing a minimum price for each unit of product, as well as fair wages and free technical support. Alpaflor® holds the Fair for Life standard, and all of the electricity used to create the product comes from renewable sources.



PERFORMANCE DRIVEN

With the Alpaflor® range, our ingredients have become the core of our customers' value proposition, and thereby their performance and success with consumers.

Strong value propositions go beyond the functional benefits of the product. In this case, the quality control and transparency underpinning the entire value chain defined Alpaflor®'s distinctive value. This gives us a competitive edge because it can't be easily replicated.

THE SAFE FEED ALTERNATIVE TO ANTIBIOTICS.

VEVOVITALL®

Food safety has risen to the top of the priority list for the livestock industry globally. The use of feed antibiotics as growth promoter, in particular, is a highly contentious issue, and in 2016, the Chinese government outlawed the use of antibiotics in animal growth.

A TRIED-AND-TESTED ANSWER TO A MARKET GAP

In China, a more sustainable solution was needed to keep animals healthy, and to protect humans from antimicrobial resistance (AMR). DSM's Animal Health and Nutrition (AHN) team stepped in with an innovative solution: using acidifiers and other 'eubiotics' with proven antimicrobial properties, VevoVital® Eubiotics optimizes gastrointestinal functionality and the health of livestock animals. Crucially, this enables the removal of antibiotics for growth promotion.

To engage local animal feed producers – including the more cautious chicken-feed segment – and to underline VevoVital®'s effectiveness, we initiated three scientific trials at our Animal Nutrition Research Center. As well as confirming unequivocally the health advantages of the solution, the studies outlined a range of unexpected secondary benefits, including reduced animal mortality, and improved performance in broilers.

SEEING IS BELIEVING

In addition to having the initial requirement of replacing antibiotics in their feed fulfilled, our customers are also happier to see their animals healthier and stronger. In short, safer feed means safer food and more sustainable growth.

PURPOSE LED

Our combined focus on both animal and human welfare led to a portfolio of safe alternatives to antibiotic growth promoters and is helping society tackle the issue of AMR. Our product improves feed efficiency, enabling farmers to use less feed, which leads to more sustainable farming.



PERFORMANCE DRIVEN

By understanding both the societal and consumer needs (safe food and healthy animals), the AHN team successfully lowered the adoption barriers and drove performance. Taking a customer-centric approach, local customers were involved in the field testing and it resulted in faster take-up and instant feedback. Tactical influencer marketing generated word of mouth and provided powerful recommendation for customers to trust the product.

ON THE ROAD TO LOWER-EMISSION VEHICLES.

STANYL®

Only ten years ago, Original Equipment Manufacturers (OEMs) in the EU automotive sector were facing CO₂ emission penalties for every car sold. With engine friction being a major contributor to emissions, our customers were looking for smart engine solutions.

TRANSFORMING AUTOMOTIVES WITH A SMALL YET POWERFUL INNOVATION

DSM's Stanyl® has been successfully specified for a wide range of applications in the automotive industry for about 20 years. First and foremost, it retains its mechanical properties at fierce temperatures of up to 230°C in the long term. In fact, the higher the temperature, the tougher the environment, and the more vibration, the better Stanyl® performs, cutting down on engine friction and therefore reducing emissions.

FROM COST TO EMISSION

Decision-making in the automotive industry had been driven by finding ways to reduce costs. But CO₂ emission penalties changed that. And the benefits of Stanyl® were plain to see: application of Stanyl® in chain tensioners in automotive timing systems can save €95 on potential penalties per car.

THE ULTIMATE GOAL

The DSM Engineering Plastics (DEP) team analyzed the wider sustainability potential. If 60 million cars used Stanyl®, it would reduce CO₂ emissions by 900KT per year – equivalent to almost 20% of the annual output of a major city like Amsterdam.

PURPOSE LED

With Stanyl®, we show how product quality and durability can go hand in hand with environmental benefits, making it an integral part of the value proposition. By engaging manufacturers around materials specification and performance, versus costs, we have delivered a value-selling business model within an industry that is otherwise very much cost driven.



PERFORMANCE DRIVEN

With a clear result defined (getting Stanyl® into 60 million cars), the DEP team knew who to convince in the automotive value chain: the OEMs. With a clear value proposition (€95 in potential emission penalties), they could move away from the cost discussion and focus on the true performance of our product in the eyes of our customers.

This allowed for value selling and value-based pricing. As a result of its innovative approach, DEP managed to change the overall value proposition of its solution, while shifting its image from that of a materials supplier to an industry application expert.

TAKING THE LOAD OFF GLOBAL CARGO.

DYNEEMA®

For centuries, the cargo sector has relied on metal chains to secure goods around the world. However, with chains typically adding 1,000 to 2,000 kilograms to journeys, unnecessary weight was proving both commercially detrimental and carbon-intensive. What's more, worker safety was being compromised when lifting metal chains, with back injuries and ear damage all too common.

SYNTHETIC FIBERS: A GAME CHANGER

For more than two decades, our Dyneema® Synthetic Ropes have been offering a lightweight alternative to metal, but with the same strength and durability. We saw an opportunity to replace the heavy metal chains used in the transportation sector with a much lighter, fiber-based alternative. As synthetic chains cost three to four times more than traditional metal versions, DSM Dyneema needed to offer certainty around the achievable gains in productivity, safety, ergonomics and damage-related cost reduction. After a successful prototyping phase, we began a rigorous certification process, working closely with textile manufacturer Industrias Murtra and safety experts DNV GL to quantify the effectiveness of the final product.

FROM FUNCTIONAL TO EMOTIONAL

We found that, compared to metal, Dyneema® Synthetic Ropes helped to significantly reduce weight and, in turn, back injuries, as well as noise and associated ear damage. As transportation companies began trialing our solution, further benefits were emerging, including enhanced productivity, employee safety and ergonomics, as well as reduced damage to cargo and equipment, and reduced carbon emissions.

PURPOSE LED

Dyneema® Synthetic Chains are having a positive health and sustainability impact, by helping to ensure the health and well-being of transportation workers around the world.



PERFORMANCE DRIVEN

Identifying a need is not the same as capturing its value. Capturing value requires perseverance, creativity and the right partners. The strong initial customer insight (reducing carry weight in the airline industry) turned into a game changer when we added "emotional benefits" that contributed to the well-being of our customers' employees.

Compelling reasons to believe in the product were provided through internal and external test results, particularly with regard to ergonomics and stringent industry norms. Later on, the end users became our advocates by sharing their experiences and convincing potential customers.

A NEW CHAPTER FOR LACTOSE-FREE DAIRY.

MAXILACT® SMART

The appeal of lactose-free dairy is growing, and it's no longer being consumed just by those who are lactose intolerant. Worldwide, three out of five people believe that lactose-free dairy is healthier. This fast-expanding market creates new opportunities for dairy manufacturers, but also drives the need for a faster, more efficient production process.

AHEAD OF THE CURVE

Creating lactose-free dairy products requires valuable processing time by the lactase enzyme. The fast-growing market for these products offers new opportunities for dairy manufacturers, but also accelerates the need for enhanced production processes. As the first company to commercialize the lactase enzyme, we have been a market leader in lactose-free solutions for over half a century. We addressed key market opportunities with our latest lactase innovation: Maxilact® Smart.

MAKING A BRIGHT SOLUTION EVEN BRIGHTER

Launched in spring 2018, Maxilact® Smart offers the full benefits of the Maxilact® enzyme range, namely lower sugar content, improved taste, and extended shelf life. The main added advantage is a much faster lactose conversion process than previous versions. Indeed, a number of customer trials have shown that the product cuts the hydrolysis time of lactose by 33%.

When added to the production process, Maxilact® Smart allows producers to achieve a double-digit increase in production efficiency, meaning more throughput in less time. It also means vastly reduced energy consumption, allowing producers to contain their carbon footprint.

PURPOSE LED

By enabling a lower health and environmental impact, as well as lower financial costs and faster production, Maxilact® Smart is a win-win solution for customers, end consumers and the environment.

Moreover, this unique story shows that bright solutions always have the potential to be even brighter. From production managers to brand owners, and from environmentalists to consumers, everyone in the value chain benefited from this solution.



PERFORMANCE DRIVEN

Through our winning combination of innovation and a commitment to sustainability, we are helping dairy customers to keep up with growing consumer demand for lactose-free products and to maximize sales, without the need for significant capital investment.

PERSONALIZED NUTRITION FOR THE DIGITAL AGE.

MIXFIT

With consumers across the world increasingly taking ownership of their own health and well-being, the demand for personalized nutrition is growing fast. As a leader in scientific research on the role of micronutrients for specific health goals, we were looking for new ways to expand the impact of our work and support healthy lifestyles around the world.

A UNIQUE COLLABORATION FOR HEALTH

In March 2018, DSM's Human Nutrition and Health (HNN) business unit launched a strategic partnership to deliver personalized nutrition solutions via a pioneering technological innovation. Mixfit is a digital health company focused on delivering personalized nutrition solutions to consumers based on their unique physiology and biology.

DRIVING CUSTOMIZED NUTRITION

Together, the companies developed the Mixfit Intelligent Nutrition Assistant (Mina), an artificial intelligence platform that analyzes an individual's genetic makeup, lifestyle and health goals. Using this information, the platform dispenses custom-made beverages that contain a personalized mix of DSM's Quali® Blends with vitamins and minerals throughout the day.

PURPOSE LED

With this innovative collaboration, the HNN team has taken a strong science-based approach. We have leveraged DSM's world-class expertise in developing targeted micronutrients and optimized their delivery through the latest cutting-edge technology. In this way, we are working to improve people's lives through better, and more personalized, nutrition solutions that are easily accessible and measurable.



PERFORMANCE DRIVEN

We are taking a frontrunner role by helping to develop new business models in order to drive the personalized nutrition segment forward. Moreover, we are embedding a more entrepreneurial culture, by investing in a unique new value proposition and welcoming an innovative technology start-up into our offices. This close, future-focused collaboration will undoubtedly help strengthen our position in a dynamic and rapidly evolving marketplace.

SOLAR ENERGY JUST GOT BRIGHTER.

Like many countries, India is embracing the benefits of solar power and investing heavily in photovoltaic (PV) technology. This is good news for energy sustainability. However, PV backsheets contain the chemical fluorine, which presents safety, health and environmental risks. While DSM Advanced Solar had offered customers a fluorine-free alternative since 2016, some markets (e.g. China) were still opting out, continuing to buy fluorine-based versions.

ADVOCATING A CLEANER ENERGY FUTURE FOR INDIA

The DSM Advanced Solar team decided to step up and raise awareness of the safety, health, environmental and cost benefits of eliminating fluorine. They launched an advocacy program targeted at government decision-makers and state-owned energy suppliers – those who decide on official specifications for PV modules.

Through a structured campaign of articles, press releases and face-to-face meetings with key decision-makers, the team was able to clearly communicate the many advantages of fluorine-free modules over less sustainable alternatives. The Advanced Solar team also demonstrated the recyclability of newer materials, which can lead to a 30% lower carbon footprint compared with fluorinated backsheets.

CHANGING HEARTS AND MINDS

A crucial turning point was the government agencies' decision to change the focus of the bid specifications issued to bidders. Rather than stipulating the particular fluorine-based materials that needed to be used to produce backsheets, they instead set clear standards for product performance. In short, the bidders were free to use PV panels using backsheets made from newer, low-risk materials and technologies.

SUSTAINABLE PV: THE NEW NORM

With fluorine no longer being stipulated in government renewable energy bid specifications in India, safer and more affordable PV has become the new norm.

PURPOSE LED

We have made a significant impact on the renewable energy landscape of India and the wider region. At the same time, we've built our brand credentials as an innovative, sustainable player in the burgeoning Asian energy market.



PERFORMANCE DRIVEN

The positive response from the government agencies has been an important change for India's renewable energy market. Solar energy suppliers across the country can now access safe, reliable technology that is more affordable and more sustainable than any of the previous solutions available.

A CLEANER FUTURE FOR CHINA'S SHIPPING INDUSTRY.

As the planet's biggest exporter and third-largest importer of goods, China produces a staggering 97% of global shipping containers. DSM has been at the forefront of a gradual shift from solvent-borne coatings to waterborne coatings in China's container manufacturing industry.

A SMALL INNOVATION, WITH A MAJOR IMPACT

Like many other industries in China, container manufacturers have historically used solvent-borne coatings to paint their containers. With containers needing multiple layers of paint (from primers through to top coats), the harm caused by uncontrolled volatile organic compounds (VOCs) was hugely damaging. It is estimated that, in 2014, the container manufacturers in China used around 141,000 tons of solvent, which was a major contributor to the country's air pollution problem.

CHANGE THROUGH THE VALUE CHAIN

By founding the Waterborne China Platform (WBCP), we have been able to reach to the entire value chain – from raw material suppliers like Allnex to coatings suppliers such as Valspar, and major container manufacturers – to engineer a change in attitude. This process has involved a rigorous multi-year schedule of face-to-face meetings, industry conferences and seminars, workshops and events. From here, we are now extending our approach to other industries, including furniture, transportation, general metal and 3C/plastic.

PURPOSE LED

Today, we are the top resin supplier to the waterborne paint market. Furthermore, the establishment of the WBCP has enabled stakeholders to acknowledge the negative health effects and climate impact of solvent-borne coatings. Annual VOC emissions have already fallen from 160,000 tons to 15,000 tons in this sector. As of April 1, 2017, 99% of containers manufactured in China have been produced using waterborne coatings.



PERFORMANCE DRIVEN

We used our leadership position to take responsibility and lead the drive for change. The combination of having a superior solution and the first-mover advantage not only enabled the team to capture value in one specific product-market combination, it also created credibility and thought leadership that can now be further leveraged.

LEADING THE FIGHT FOR CONSUMERS' HEALTH.

Mexico is one of the largest soft drink consumers in the world, while consumption of junk and fast food is also prevalent. To avert a public health crisis, the Mexican government legislated to remove excess fats, sugars and salts from high-calorie food and beverage products.

Unfortunately, this also triggered the reformulation of consumer products and, in some cases, negatively impacted the application of essential nutrients and minerals by the food and beverage market.

The DSM Human Nutrition & Health (HNH) business unit in Mexico championed the need for fortified foods to support the nutritional requirements of society's most vulnerable consumer groups.

UNRAVELING THE MYTHS AROUND FORTIFICATION

DSM's HNH team in Mexico made the decision to highlight the importance of fortified foods and the consequences of defortification. As part of its approach, the team identified costs and aspects of clean label misinformation as key drivers of the defortification trend.

Added to this, it was sometimes assumed that the public lacked awareness around the added value of food fortification. Using digital and social media, we found that, in reality, 91% of Mexico's mothers supported fortification and 74% sought to nurture their children with fortified foods.

TAKING RESPONSIBILITY

Scientific evidence and national data clearly identified micronutrient deficiency as part of a public health issue in Mexico (e.g. prevalence of anemia in pre-school age children was 23.3% while 25.9% suffered from vitamin D deficiency, according to the 2012 ENSANUT national survey of health and nutrition trends) and drew on the World Health Organization's mandate that food manufacturers have a role in driving public health and corporate social responsibility. Through a multilevel approach, we drove ownership of the issue throughout the value chain.

PURPOSE LED

We have been able to tackle this country's challenges by actively promoting fortification throughout the food and beverage categories. In doing so, we have ensured that many vulnerable groups are in a position to benefit from vital micronutrients and have access to healthy nutrition.



PERFORMANCE DRIVEN

As a thought leader, we worked together with our main customers to stimulate fortification and promote the nutritional value of their brands. Leveraging all of the knowledge and technical expertise available across DSM, we were able to educate the educators and support our direct customers with fresh consumer insights linked to their brands and strategies around food and beverage fortification. By doing this, we support our customers in finding adequate nutritional solutions. In this way, DSM has been repositioned as a credible and value-adding partner that takes care of consumers' well-being by helping them to eat healthier.

SWEETENING THE DEAL FOR SUGAR REDUCTION.

AVANSYA™ Reb M

With overweightness and obesity on the rise around the globe, the food and beverage industry was looking for ways to offer consumers healthier, low-calorie versions of popular food and drink products. In particular, there was growing demand for non-artificial sweetener ingredients made from natural sources. As a leading developer of sugar-reduction solutions, DSM was well placed to address this emerging – and complex – market need.

FINDING THE SWEET SPOT

Drawing on our deep knowledge of fermentation and product development, DSM's Food Specialties business unit set to work on developing a new, non-artificial sweetener. As non-artificial sugar reduction is a relatively new field, the team regularly consulted with customers and consumers during the early stages of the project to fully understand their wishes and requirements.

After intensive research and development, we produced AVANSYA™ Reb M, a non-artificial sugar-reduction product made from fermented Stevia. This innovative, carefully formulated sweetener offers consumers a great, pure taste that closely resembles sugar. What's more, it is delivered via a sustainable, scalable production process that ensures a competitive cost-in-use for food and drink producers.

A TEAM EFFORT

Because of the strict regulatory requirements for sweetener ingredients, bringing AVANSYA™ Reb M to market still presented a major challenge. Our Food Specialties team worked closely with the Food and Drug Administration (FDA) in the United States to ensure the necessary requirements were met. Having gained approval for a US launch, the team is now working with regulators in Europe and other markets. This process involves a collaborative effort by DSM colleagues around the world, and the support provided by our regional regulatory experts has been especially crucial.

PURPOSE LED

With the launch of AVANSYA™ Reb M, we are not only delivering a healthy, naturally sourced solution for food and beverage customers; we are also producing our ingredient in a sustainable way by leveraging our outstanding fermentation technology and expertise. Moreover, because our production processes are highly efficient and scalable, we are able to ensure that our solution remains cost-efficient for DSM's customers, thus lowering the end cost to consumers. Because of our work, individuals can enjoy healthier, great-tasting low-sugar products at an affordable price.



PERFORMANCE DRIVEN

AVANSYA™ Reb M has further strengthened our position in the global sugar-reduction market, which is worth an estimated \$90 billion annually. With multiple ingredient suppliers looking to enter this high-growth food and beverage segment, being able to offer a competitively priced product with proven sustainability credentials is a major commercial advantage. Our product's unique value proposition gives us an excellent growth platform in this dynamic and rapidly emerging marketplace.

A BREAKTHROUGH FOR BIOFUEL.

eBOOST™

Depleting natural resources and the consequences of greenhouse gas (GHG) emissions mean that, more than ever, there is an urgent need for clean energy solutions that don't cost the earth. However, when it comes to productivity and cost-efficiency, the biofuels industry has struggled to close the gap on traditional energy sources. As a leading innovator in the ethanol space, DSM was well placed to offer a solution.

A MUCH-NEEDED BOOST

Producing around 15 billion gallons of ethanol per year, the corn ethanol market in North America is substantial and has immense long-term potential. However, to make biofuel a cost-effective alternative to traditional energy sources, local producers needed a 'boost'.

DSM's Bio-based Products & Services business unit came up with a solution: eBOOST™ is an innovative yeast that improves plant performance by significantly increasing the energy generated from corn. As well as increasing ethanol yield, eBOOST™ also enhances plant efficiency by reducing production of the by-product glycerol. This means the yeast has more carbon available for conversion to ethanol.

SAME CORN, MORE FUEL

Full-scale application trials of our solution revealed that, compared with existing yeast products, eBOOST™ increases ethanol yields by up to 6% while reducing glycerol production by as much as 75%. For producers, this is a game-changer: a 5% average increase in output allows a typical ethanol plant to produce three million additional gallons of ethanol a year from the same volume of corn. This is the equivalent of opening seven new production plants.

PURPOSE LED

By making biofuel production more efficient and cost-effective, DSM is accelerating the move away from environmentally harmful, finite energy sources. Consuming more oil and gas than any other region, North America is the logical launchpad for our solution. And, given the region's significant ethanol output, even a small increase in overall productivity can help tip the balance toward a more sustainable energy future. But this is just the start: our technology has the potential to help drive the clean-energy transition of countless other major fuel-intensive economies, including Brazil, China, Europe and India.



PERFORMANCE DRIVEN

With the launch of eBOOST™, we have significantly strengthened our position in the bio-ethanol market. It represents an important milestone in our push to drive efficiency throughout the biofuels industry worldwide through our yeast and enzyme technologies. As per our long-term vision, we will continue to move forward by further developing our technological capabilities in cellulosic ethanol. Our overall objective is to assume a global biotechnology leadership role in the corn and cellulosic ethanol segments.

DELIVERING A CLEAR VISION FOR EYE TREATMENT.

Good vision is essential for quality of life. However, as people age, their risk of developing retinal disease and other debilitating eye conditions increases exponentially. As a leading developer of innovative biomedical materials, DSM was looking for ways to improve on existing drug therapies used in addressing this growing problem.

DROPPING THE DROPS

The eye is a particularly complex area of the body to treat. A key success factor in any eye therapy is whether the patient receives the right medicine dosage, over the right period of time, and in the right location. Though commonly used to deliver treatment, eye drops can be difficult for patients and caregivers to administer. What's more, drops typically fail to penetrate the eye well, making it difficult to deliver the correct concentration of the medicine. As such, many so-called retinal diseases that affect the back of the eye require regular localized needle injections, often up to once a month, causing significant discomfort and disruption to patients' lives.

A NEW SOLUTION IS RELEASED

Recognizing this unmet clinical need, DSM's Biomedical business team developed an innovative sustained-release drug delivery solution: a small injectable biodegradable polymer fiber is loaded with medicine, which is targeted at a specific location in the eye and then released over multiple months until the fiber degrades. Additional fibers can be injected over time for continuous therapy. In this way, our innovation offers a much more targeted, and consistent, alternative to traditional eye drug delivery practices.

PURPOSE LED

With DSM's sustained-release delivery solution, we are helping people to live healthier and more fulfilling lives. The greatest long-term benefit may be to older individuals who are at a higher risk of developing eye-related illnesses; according to the World Health Organization (WHO), of the 253 million people affected by blindness and vision impairment, 81% are aged 50 or older. Moreover, by enabling more successful treatment solutions at a patient level, the solution can help ease the growing socio-economic impact of eye disease in rapidly aging populations, such as in Europe, North America and Japan.



PERFORMANCE DRIVEN

A key step forward in our objective has been commercializing our solution through a strategic collaboration and license agreement with Aerie Pharmaceuticals, a leading ophthalmic pharmaceutical company. The partnership is helping to bring DSM's innovation to millions of patients around the world and will potentially enable better treatment for a wide range of ophthalmic conditions. The strong value proposition of our solution gives us a competitive edge, which we can replicate in other fields of medicine where sustained-release drug delivery may be beneficial.

TAKING ACTION ON CLIMATE CHANGE TOGETHER.

PROJECT CLEAN COW

Around the world, dairy and beef cows are an important source of milk and protein, and also offer farmers and local communities essential income. However, despite clear nutritional and socio-economic benefits, rearing cattle leaves a substantial environmental footprint. In fact, an estimated 14.5% of all human-caused greenhouse gas (GHG) emissions come from livestock, with nearly 65% of this originating from dairy and beef cows.

HOW TO SOLVE A PROBLEM LIKE METHANE

A large proportion of livestock emissions come from enteric – or burped – methane, as a result of cows' natural digestive processes. While GHG carbon dioxide remains in the atmosphere for centuries, methane warms the planet far more quickly. Over a 20-year timeframe, methane's global warming potential is an astounding 84 times higher than that of CO₂.

PART OF THE CLIMATE CHANGE SOLUTION

DSM decided to take the lead in exploring practical solutions for reducing bovine methane emissions. After extensive research, our scientists came up with the answer: through the so-called Project Clean Cow we have developed a feed supplement (3-NOP) that suppresses the enzyme that triggers the enteric methane production in bovine. In doing so, peer-reviewed studies have shown that 3-NOP has the ability to consistently reduce enteric (burped) methane by ~30% for dairy, beef and sheep, if delivered at the recommended dose.

PURPOSE LED

By helping to reduce the methane impact of cattle farming, we are helping to solve a major global sustainability challenge: supplying consumers with sufficient animal protein in a way that minimizes harmful emissions. Moreover, we are helping to mitigate the wider effects of cattle farming on the environment – namely the amount of land and consumables used in dairy and beef production.

From a socio-economic standpoint, Clean Cow gives farmers and families the tools to support themselves financially and/or nutritionally in a more sustainable way.



PERFORMANCE DRIVEN

Our solution is helping food retailers and brands to lower their carbon footprint while also meeting a growing consumer demand for sustainable, eco-friendly products. In addition to preparing market introduction for the feed supplement, DSM is mobilizing key players and influencers across the livestock value chain in order to shape a more sustainable – low-emission – future for the industry. In particular, we are working with our partners to create the conditions farmers need to implement cleaner, and more profitable, business practices.

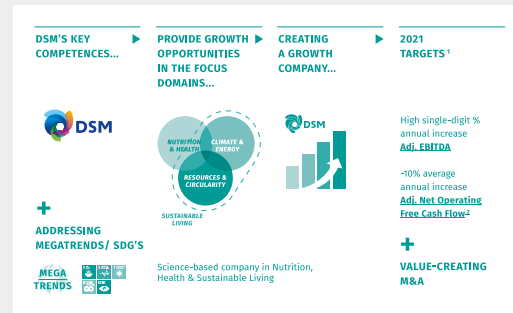
NEXT?

***HOW WILL YOU LEAD
PURPOSE LED,
PERFORMANCE DRIVEN
GROWTH?***

DSM STRATEGY UPDATE: GROWTH & VALUE – PURPOSE LED, PERFORMANCE DRIVEN

On 20 June 2018, DSM presented its strategy update detailing how it will evolve further towards a purpose-led, science-based company in Nutrition, Health and Sustainable Living. DSM's strong growth platform, centered on developing innovative solutions addressing Nutrition & Health, Climate & Energy and Resources & Circularity, together with increased customer centricity and its large innovation projects, will drive above-market growth, while DSM will remain focused on cost control and operational excellence, allowing it to accelerate profit and cash generation. Organic growth will be complemented by acquisitions predominantly in Nutrition.

Two ambitious targets for profit growth and cash generation have been set for the period 2019-2021: high single-digit annual percentage increase in Adjusted EBITDA and about 10% average annual increase in adjusted net operating cash flow.

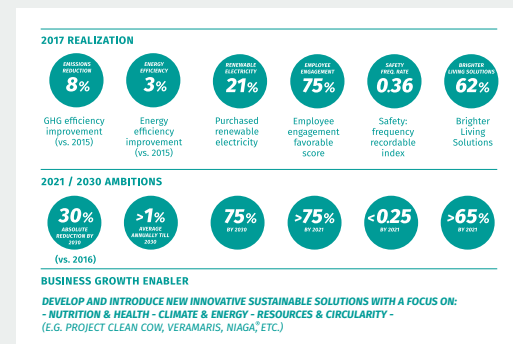


1. Based on 'underlying business' 2018 Base Line corrected for the temporary vitamin effect
2. Adjusted net operating free cash flow is cash flow before share purchases for options/ exercise of options, interest, dividend, M&A and financing activities

Purpose sets scope for further growth and evolution With its unique science-based competences, DSM is ideally positioned to capture the growth opportunities offered by the global megatrends and Sustainable Development Goals (SDGs), with a particular focus on Nutrition & Health, Climate & Energy and Resources & Circularity. DSM will therefore evolve into a Nutrition, Health and Sustainable Living company:

- DSM's Nutrition business will focus on human nutrition (ingredients and solutions for food & beverages, as well as specialty nutrition, nutritional ingredients, consumer branded products and personalized nutrition), animal nutrition (covering all species with premix and specialty solutions) and personal care and aroma ingredients; while,
- DSM's Materials business will further develop into a high-growth, higher-margin specialty business and focus on health, bio/ green applications and new mobility & connectivity applications.

By improving the impact of its own operations, enabling sustainable solutions for its customers and advocating sustainable business, DSM can grow faster and reduce its cost and risk profile. DSM will further step-up its ambitions regarding the reduction of GHG emissions, energy efficiency and use of renewable energy:



1. See DSM's Integrated Annual Report 2017 for definitions and additional information; in addition: Circular Businesses DSM in 2017: ~15% of total sales
2. Change from efficiency to absolute reduction (scope 1&2); scope 3 set in H2 '18 (part of Science Based Targets); GHG EI of 8% in '15/'17 is 26% vs. 2008 (target: ~40% by 2025)
3. KPI will be updated as part of the Responsible Care Plan update in 2020

Performance-driven to deliver growth and value DSM has set two ambitious targets for profit growth and cash generation to drive value creation for the period 2019-2021:

- High single-digit annual percentage increase in Adjusted EBITDA
- About 10% average annual increase in adjusted net operating cash flow

These financial targets will be supported by an holistic value-creation approach:

2021 TARGETS ¹	AMBITIONS UNDERPINNING GROUP TARGETS ¹	
High single-digit percentage annual Adj. EBITDA increase	1. Sales	Above-market growth (-5%) for Group, Nutrition and Materials
	2. Adj. EBITDA margin	Nutrition: >20% Materials: 18-20%
	3. Working capital	Reduce by 50 bps annually to -16%
-10% average annual Adj. Net Operating Free Cash Flow ² increase	4. Capex	-6.5% of sales
	5. ROCE	-1%-point increase per annum
	6. Adj. EPS	Increase ahead of Adj. EBITDA growth

1. Based on 'underlying business', 2018 baseline is corrected for the temporary vitamin effect
2. Adjusted net operating free cash flow is cash flow before share purchases for options/ exercise of options, interest, dividend, M&A and financing activities

DSM is committed to top-line growth ahead of market, resulting in about 5% organic growth, that will be supported by expanded solutions offerings, putting the customer even more in the center, and the delivery of large innovation projects. Approximately 45% of sales will come from high growth economies and 20% of sales will come from innovation. DSM continues to invest in differentiating science and technology with circa 5% of sales and harness digital capabilities to increase customer intimacy, improve productivity/efficiency and support new business models.

Greater efficiencies and an increased focus on higher-margin specialty solutions will enable new Adjusted EBITDA margin ambitions by 2021 for Nutrition (over 20%) and Materials (18-20%). Organic top-line growth combined with these enhanced

margins will drive DSM's high single-digit Adjusted EBITDA growth.

DSM aims to accelerate growth in adjusted net operating free cash flow of about 10% average annual increase. This results in the ambition to reduce working capital levels of around 50 bps annually to about 16% of sales (from 18.4% in 2017), a disciplined approach to capex with an overall level of approximately 6.5% of sales, and the ambition to drive improvements in organic ROCE of around 1% annually.

DSM's overall deployment of capital is expected to drive Adjusted EPS growth ahead of Adjusted EBITDA growth. DSM cash allocation policy remains unchanged and has a clear order of priority for cash deployment:

1. Disciplined capex for organic growth: about 6.5% of annual sales;
2. A stable, preferably rising dividend;
3. Disciplined M&A, predominantly in Nutrition;
4. In the absence of value-creating M&A, capital to be returned to shareholders.

DSM remains committed to maintaining a strong, investment grade credit rating.

While keeping its policy of a stable, preferably rising dividend unchanged, DSM will propose a dividend increase of about 25% to €2.30 per ordinary share over 2018, already reflected in the interim dividend over 2018 to be paid 24 August 2018. This step-up in dividend is linked to underlying earnings growth. In line with the targets set for the period 2019-21, DSM's performance is expected to result in further dividend growth, which could lead to an expected average payout of 40-50% of adjusted (underlying) earnings.

DSM targets M&A predominantly in Nutrition given its growth potential, resilience, strong leadership position and value creation potential.

DSM'S COMMITMENT TO THE SUSTAINABLE DEVELOPMENT GOALS

Addressing the challenges of Nutrition & Health, Climate & Energy and Resources & Circularity drive our business and innovation strategies. We believe that our expertise in nutrition, health and sustainable living position DSM well to actively contribute to the Sustainable Development Goals (SDGs). While all the Goals are important, our

capacity to support their individual achievement varies. There are five SDGs on which we believe our company and its businesses can be most influential; # 2 - Zero hunger, # 3 - Good health and well-being, # 7 - Affordable and clean energy, # 12 - Responsible consumption and production, # 13 - Climate action.



BRIGHT SCIENCE. BRIGHTER LIVING.™