Purpose led, performance driven.
Creating brighter Lives for all.

BRIGHT SCIENCE. BRIGHTER LIVING.™
Key DSM strategy & sustainability facts.
DSM at a glance
Royal DSM: a company with a purpose

- Sales ~€8.6bn (9% growth in 2017) *
- EBITDA €1,445m (15% growth in 2017) *
- ROCE 12.3% (up 190bps) *
- Global company with 65% of sales outside Europe
- Highly engaged workforce: ~23,000 employees
- Intrinsically innovative company: 21% sales from innovation
- ~ 45% sales from high-growth economies
- Strategy well aligned with the Sustainable Development Goals

* 2017 numbers
“We cannot be successful, nor can we call ourselves successful, in a society that fails.”

- **Hunger vs. Obesity:** Over 821 million people suffer from hunger, while over 650 million people are obese.

- **Climate Catastrophe:** >140 million people could be forced to migrate due to climate change.

- **Resource Consumption:** Our demand of resources is expected to reach 130 billion tons by 2050. An overuse of the earth’s capacity by more than 400%.
The world is changing.

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

**Doing well**

- Focus on profit
- Doing financially well...

**Doing good**

- Improving the world.
- Go together with doing well for the world.

10 years ago

Start DSM’s new/next sustainability journey

Today

DSM’s purpose is fully anchored in its strategy: Creating Brighter Lives For All

10 years from now

Good financial returns...

Will go together with purpose.
Purpose drives growth opportunities.

Our competences and purpose...

Provide growth opportunities in the focus domains...
A science-based company in health, nutrition and sustainable living:

Creating a growth company...

With targets that underpin our mission.
OUR 2019-2021 TARGETS:

- High single-digit percentage annual Adj. EBITDA increase
- ~10% average annual Adj. Net Operating Free Cash Flow increase
- Value-creating M&A

Company growth
Our 3 focus domains.

We use our key competences to address the UN sustainable development goals; these provide growth opportunities in our 3 focus domains:

We are already reaching ~2.5 billion people worldwide.
3 purpose focus domains.

**Nutrition & Health**
- adequate macro-/micronutrients (proteins, vitamins, minerals, fatty acids)
- fighting malnutrition (i.e. undernutrition, overweight)
- enabling sustainable animal protein production such as dairy, poultry, eggs, fish and meat
- reducing salt, sugar, saturated fat
- combatting antimicrobial resistance
- providing for biomedical and nutrition solutions to support health and longevity

**Climate & Energy**
- reducing greenhouse gas emissions in own operations, enabling our customers and advocacy
- enable greenhouse gas emissions reductions for customers
- advocate a low carbon economy and carbon pricing
- stepping up renewable energy

**Resources & Circularity**
- enabling circular & bio-based solutions: reduce, replace, extend, design, recover
- improving resource efficiency
- increasing yields
- reducing food loss and waste
- sustainable land use
- preserving marine biodiversity
We have always been a company with ambition.

Both our financial targets and sustainability ambitions reflect this:

- **30%** Absolute emissions reduction by 2030; vs. 2016
- **>1%** Average energy efficiency till 2030
- **75%** Purchased renewable electricity by 2030
- **>75%** Employee engagement by 2021
- **<0.25** Safety freq. rate by 2021
- **>65%** Brighter living solutions by 2021
We are recognized by benchmarks as leading the way in integrating sustainability in operations and business.

Industry Group leader for the 8th time (among the leaders for past 15yrs) (2018)

For the 3rd year DSM is on Fortune Magazine’s Change the World list (2018)

A-rating for CDP Water and CDP Climate (2017)

Chemicals Industry Leader in Sustainalytics ESG ranking (2018)
Brighter Living Solutions (BLS).

Innovations and products that are better for the planet (eco+) and/or people (people+) based on a product life cycle approach.
Methodology.

*DSM’s solutions should be better for people and/or planet.*

We use Environmental Life Cycle Analysis and People Life Cycle Analysis to determine if our products have better environmental and/or social performance than the market reference solution.

In 2017, we realized 62% sales of Brighter Living Solutions (reported performance).
How we will achieve our purpose.

**Improve.**
Improve and adapt our own operational impact by further improving safety and resource efficiency, 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.
Our brighter living agenda.

**Nutrition & Health**

**Climate & Energy**

**Resources & Circularty**

**Improve.**

**Enable.**

**Advocate.**

World food program UNICEF

GHG emission reduction targets

Circular & bio-based solutions
**DSM brighter living agenda.**

<table>
<thead>
<tr>
<th>Improve</th>
<th>Enable</th>
<th>Advocate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nutrition &amp; Health</strong></td>
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<td><strong>Nutrition &amp; Health</strong></td>
</tr>
<tr>
<td>- Vitality@ DSM</td>
<td>- Replacing salt and sugar</td>
<td>- Partnerships in fighting malnutrition</td>
</tr>
<tr>
<td>- Occupational safety</td>
<td>- Sustainable animal proteins</td>
<td>- Active partnerships to address sustainable &amp; healthy nutrition</td>
</tr>
<tr>
<td>- Employee wellbeing programs</td>
<td>- Advancing biomedical materials</td>
<td></td>
</tr>
<tr>
<td><strong>Climate &amp; Energy</strong></td>
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<td><strong>Climate &amp; Energy</strong></td>
</tr>
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<td>- Goal: 30% absolute reduction in GHG emissions (scope 1 and 2, compared to 2016, by 2030)</td>
<td>- Limiting the use of fossil fuels (biofuels, solar)</td>
<td>- Advocating climate action and building the movement for a low-carbon economy</td>
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<td>- Improving digital infrastructure</td>
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<td></td>
</tr>
<tr>
<td><strong>Resources &amp; Circularity</strong></td>
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<td>- Executing responsible care plan addressing waste, water, emissions</td>
<td>- Reduction of landfill (niaga®)</td>
<td>- Advocating the transition from a linear to a circular and bio-based economy</td>
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<td>- Embedding circular &amp; bio-based thinking into sourcing, operations, innovations and portfolio</td>
<td>- Increase use of renewable and secondary resources</td>
<td>- Partnering to enable closed loop solutions</td>
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<td>- eliminating waste from prototyping (3D printing)</td>
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We cannot do this alone.

We are recognized as a positive contributor to a changing world – we achieved this thanks to our employees, shareholders and customers.

With our employees
Doing something meaningful everyday.

With our customers & suppliers
Pioneering solutions that enable brighter living.

With our shareholders
Profit with a purpose.

For society
Transforming our world.
Advocating with partners.

the World Business Council for Sustainable Development is a CEO-led organization of over 200 businesses working together towards joint sustainability goals.

internal price on carbon (starting with €50), and committed to responsibly engaging in climate policy.

global engagement and promotion of the role of renewable materials in a Circular Economy.

driving sustainable and future-proof food systems, advocate the necessary dietary switches to improve peoples’ health.
Nutrition & Health

Enabling and advocating healthy diets for all within planetary boundaries
Sustainable healthy proteins.
Nutrition & Health.

- Contribute to adequate macronutrients and micronutrients (i.e. vitamins, minerals, fatty acids)
- Fight malnutrition (undernutrition, overnutrition, hidden hunger, overweight and obesity)
- Enabling sustainable animal protein production such as dairy, poultry, eggs, fish and meat
- Reduce salt, sugar, saturated fat content
- Combat antimicrobial resistance
We help to shape the world by the food choices we make. Our food choices in turn help shape us. That’s why DSM is committed to supporting healthy food choices that help keep both people and the planet healthy: *Healthy diets for all within planetary boundaries.*

We want to be part of a global coalition for food system change, helping to provide affordable, aspirational and healthy nutritional solutions for everyone.

All people should be able to enjoy a healthy diet, and the food we consume should keep our planet in good shape, both now and for generations to come.
5 priorities for food system change.

- combatting NCDs
- fighting AMR
- reducing food loss and waste
- sustainable proteins
- affordable nutrition
改善。能动。倡导。

DSM FIT Worklife Center 保障可持续的就业能力 - 所有努力保持我们的员工健康、有活力、有动力。

我们可持续生产蛋白质，如 dairy, meat, fish and eggs 以满足日益增长的全球人口的需求。

为了享用美味的食物，减少盐、糖和脂肪含量，我们提供解决方案，如 Maxarome®，使口味保持出色，同时降低50%的盐水平。

基于我们的 Health Platforms - 心脏健康，肠道健康，骨骼健康，视力 - 我们提供营养素，例如维生素和矿物质，以满足不同年龄群体的特定需求。

DSMs Nutrition Science & Advocacy Group 倡导均衡的食物和营养，基于最新的科学见解。
Cooperation to drive innovation and transformational change.

We partner to develop and implement solutions at scale...

...and cooperate in coalitions of industries, academics and NGOs to drive innovation and transformational change.
Climate & Energy

Enabling a low-carbon economy and advocating climate action
DSM global climate action.
Climate and Energy.

- reduce greenhouse gas emissions
- enable greenhouse gas emissions reductions for customers
- advocate a low carbon economy and carbon pricing
- step up renewable energy
It is now widely accepted that human activity is responsible for global warming, resulting in climate change.

Our planet is on track to break through the “1.5 to 2 degree ceiling”: the global average temperature rise defined by the United Nations as the upper limit to avoid a devastating impact on people and their ability to live on this planet.

To stay below this limit, significant cuts on the release of carbon dioxide and other greenhouse gases are needed.
Climate and Energy.

Improve. Enable. Advocate.

Realize 30% absolute reduction by 2030 (base year: 2016) for Scope 1 & 2 GHG emissions, via energy efficiency, 75% renewable purchased electricity by 2030, internal carbon price.

Through our range of animal nutrition solutions we help to reduce direct and indirect GHG emissions. With solutions like Project Clean Cow we help to significantly reduce direct methane emissions from cows.

Stanyl®: high performance polyamide used for example in automotive applications. While cutting down engine friction it contributes to reducing emissions.

Advocate accelerated climate action: creating markets in which our low-carbon products can thrive, with a focus on renewable energy and carbon pricing.
To advocate for climate action and carbon pricing DSM is active member of different networks and coalitions.
Resources & Circularity

Enabling and advocating the transition toward a circular & bio-based economy
Material design as a key driver for the circular economy.
Resources & Circularity.

- enabling circular & bio-based solutions: reduce, replace, extend, design, recover
- improve resource efficiency
- increase yields
- reduce food loss and waste
- preserve land, marine biodiversity

Nutrition & Health
Climate & Energy
Resources & Circularity
Circular & bio-based economy.

A Circular Economy provides food, materials and energy in a way that is restorative by design, helped by nature’s ability to regenerate resources for our consumption.

As opposed to the current Linear Economy, in which products are consumed briefly and inefficiently disposed of, a circular model makes sure that resources serve our economy to their best potential and maintain their highest value.

A Bio-based Economy mutually reinforces a Circular Economy, as they complement each other in many respects.
5 drivers of circularity.

Unlocking more value from the limited resources available and securing the future availability of natural resources.

To reach this twofold goal, DSM focuses on five circular drivers:

- **reduce** the use of critical resources
- **replace** scarce, hazardous, and potentially harmful resources
- **extend** the lifetime of products
- **design** for recyclability
- **recover** waste streams
Resources & Circularity.

Improve. Enable. Advocate.

DSM is pioneering with bio-based materials. Decovery®, a plant-based high-performance resin, enables the coating and inks industry to develop more sustainable, healthier products.

DSM uses discarded fishing nets as the source to produce the recycle-based polyamide Akulon® RePurposed. It is a versatile, high performance material used e.g. for surfboard accessories.

DSM is designing for recyclability. Niaga® is an example of an emerging technologies that contributes to the transition toward a circular economy. The first product Niaga® took on to redesign was carpet which is fully recyclable.

DSM aims to enable the transformation towards a circular & bio-based economy and is part of different coalitions with the same goal.
We partner to work on the transition towards a circular economy.

We are part of different coalitions aiming to enable the transformation towards a circular & bio-based economy:

... and support initiatives with the same goal.
Putting ambition into practice: Our solutions.
Index of some DSM solutions

- Advanced sweeteners (AVANSYA™)
- Akulon®
- Akulon® Repurposed
- Alpaflor®
- Antioxidants
- Balancius™
- Brewers Clarex®
- CanolaPRO™
- Decovery®
- DSM Endurance Backsheet
- Dyneema®
- eBOOST™
- Hy.D®
- Maxilact® smart
- Mixfit
- ModuMax®
- Niaga®
- Pack-Age®
- Rice Fortification
- Stanyl®
- Veramaris®
- Vevovitall®
**Advanced sweeteners**

- In times of obesity and related diseases, sugar reduction in food is one point of intervention
- Increased interest in non-artificial, zero-calorie, great-tasting sweetener options
- One category of sweeteners are steviol glycosides Reb M and Reb D produced through fermentation
- Scalable, sustainable and low cost-in-use solution than if these same molecules were extracted from the stevia leaf
- Cargill and DSM have set up the Avansya JV to produce advanced sweeteners Reb M and Reb D
Akulon®

- high performance polyamide 6 materials used in food packaging and automotive applications e.g.
- protects food safety and quality and helps to maintain nutritional value
- light weight alternative for metal parts in automotive applications, reducing fuel consumption and tailgate emissions
- high puncture resistance to reduce food damage during transportation
- high oxygen barrier properties to prolong food shelf life

Protecting food from damage and deterioration

Akulon® can be recycled at the end of service life

Light weight alternative for metal parts
Akulon® RePurposed

• DSM uses discarded fishing nets as the source to produce the recycle-based polyamide Akulon® RePurposed

• it is used in high-end applications in the sports and leisure segment (e.g. surfboard accessories)

• the discarded fishing nets are collected along the coastlines of India, then treated and upcycled using local labor, before being compounded

• with this new product line DSM contributes to cleaner oceans, litter-free beaches and jobs for local communities
Alpaflor®

- unique compounds of alpine flowers used to develop new, sustainable bioactive ingredients for skin care customers
- alpine flowers (e.g. edelweiss) used for its ability to withstand large variations in temperature and dehydration
- portfolio offers a full range of high performing ECOCERT, COSMOS, NATRUE, Fair For Life fair trade and Halal certified bioactives cultivated in the Alps
- long-term supply agreement with cooperative of edelweiss farmers (minimum price for each unit of product, fair wages, free technical support)
Antioxidants

- antioxidants are ingredients that retard the oxidation processes
- vitamins added to food & beverages to prolong shelf life and provide nutritional benefits
- more natural and scientifically-proven way to effectively reduce food waste and the carbon footprint
- allowing consumers to keep their products longer after opening thereby saving money
Balancius™

• novel feed ingredient that significantly improves broiler productivity and reduces FCR by 3% consistently

• new enzyme facilitating digestion and nutrient absorption developed by DSM and Novozymes

• helps optimize nutritional absorption and digestion, so broilers get more from their feed, trials show that adding Balancius of a broiler flock of 1 mio birds saves 12,500 kgs of feed

• if used by the Latin America chicken flock, the reduced feed requirement would amount to an annual GHG emissions reduction equivalent to that of a population of half a million people
**Brewers Clarex®**

- patented enzyme technology that streamlines beer stabilization thus allowing to skip the deep cooling step and shortening stabilization time from weeks to days
- if all beer in Europe was brewed with Brewers Clarex®: 327 mln KWH energy saved, 30mln € energy costs saved, 52000 less cars on the road (CO₂ equivalent)
- proven and widely used solution for gluten-free beer production
- 50% of craft beer consumers say a product advertised as being sustainable is more attractive

- stabilizes beer without the deep cooling step
- no impact on beer taste, foam or quality
- reducing waste and energy usage
CanolaPRO™

- turning an inedible by-product of rapeseed oil extraction into valuable food protein for food & beverages
- plant-based protein
- high nutritional value
- balanced taste profile
- excellent functional properties, including high solubility

plant-based protein with a balanced taste
low carbon footprint
repurposing by-products of Rapeseed oil extraction
Decovery®

• plant-based, eco-friendly resin containing renewable materials
• contrary to traditional crude oil based resins, Decovery® offers our customers a plant-based building block for sustainable paints
• contains a high content of renewable materials of up to 49%, and consequently, has a lower carbon footprint up to 34%
• enables the coating and inks industry to develop more sustainable, healthier products
DSM Endurance Backsheet

• for ultimate solar module protection
• reliable & high efficiency performance in extreme environments
• innovative manufacturing process allowing flexibility in material design & costs
• solvent & fluorine-free and recyclable, resulting in 30% carbon footprint reduction
• enabling the industry to create 100% recyclable solar module

100% recyclable  durable  30% lower carbon footprint
• premium brand for Ultra-High Molecular Weight Polyethylene
• strongest, lightest, most versatile fiber in the world
• Dyneema® formats are truly with you when it matters for a wide range of industries or applications (offshore, cut resistant gloves, sport & lifestyle, renewable energy, ...)
• Dyneema® Synthetic Ropes have been offering a lightweight alternative to metal, but with the same strength and durability
eBOOST™

• innovative yeast that improves plant performance by significantly increasing the energy generated from corn

• when it comes to productivity and cost-efficiency, the biofuels industry has struggled to close the gap on traditional energy sources

• increasing ethanol yield

• enhances plant efficiency by reducing production of the by-product glycerol (the yeast has more carbon available for conversion to ethanol)

making biofuel production more efficient and cost-effective

same corn, more fuel: increases ethanol yields by up to 6%

accelerating the move away from finite energy sources
Hy.D®

• active form of vitamin D3 specifically developed to improve skeletal health and development
• supports the animal’s health and welfare leading to improved productivity and lifetime performance
• in layers, it improves egg shell strength resulting in significant reduction in egg breakage
• in broilers, it improves skeletal health and muscle mass, resulting in greater meat yields
• in swine it improves skeletal health and locomotion issues in sows, resulting in better welfare and better reproductive success
Maxilact® Smart

• a new generation of lactase enzymes to produce lactose-free dairy products faster while maintaining a clean taste

• worldwide, three out of five people believe that lactose-free dairy is healthier

• offers the full benefits of the Maxilact® enzyme range, namely reduced sugar, improved taste, and extended shelf life

• added advantage of a reduction in hydrolysis time of up to 30%, increasing capacity and reducing the carbon footprint of lactose-free dairy

double digit increase in production efficiency
enables more people to enjoy lactose-free dairy
enabling a lower health and environmental impact
Mixfit

• Mixfit is a digital health company focused on delivering personalized nutrition solutions to consumers based on their unique activity level and food intake
• consumers across the world are increasingly taking ownership of their own health and well-being
• DSM helped develop the Mixfit Intelligent Nutrition Assistant (Mina), an artificial intelligence platform that analyzes an individual’s lifestyle and health goals
• platform dispenses custom-made beverages that contain a personalized mix of DSM’s Quali® Blends with vitamins and minerals throughout the day

personalized nutrition for the digital age

custom-made beverages with DSM’s Quali® Blends

supports consumers to take ownership of their health and wellbeing
ModuMax®

- innovative, natural taste modulator for food and beverages
- helps to create preferred taste profiles in products with alternative sweeteners or are lower in fat
- improves taste in products with additional nutrients, fibers or alternative protein with undesirable flavor notes

- supports tasty products low on sugar/salt/fat
- supports tasty products with added proteins, fibers
- 100% renewable energy source for production
Niaga®

• all materials in our redesigned products can easily be recovered, to make the products again, and again

• 95% of carpet being burned or sent to landfill after use; among the top-five contributors to landfill and incineration in Europe and North America

• 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
Pack-Age®

• Pack-Age® - cheese ripening: “Get more from your cheese, naturally.”
• moisture-permeable, breathable membrane used in the natural ripening process of hard cheeses
• providing protection against mold growth
• deliver safe and healthy to eat cheese to consumers
• if all the natural ripened gouda & parmesan cheeses were ripened with Pack-Age®, 3.6bn liters less milk is needed to produce the same amount of cheese
Rice fortification

• in many parts of the world, people are lacking micronutrients in their diet
• with over 3 billion people worldwide relying on rice as their staple food, rice fortification offers a unique opportunity to substantially improve their micronutrient status at a very low cost
• DSM provides fortified kernels made from essential micronutrients and rice flour, which are mixed into regular rice at 0.5-2% to increase its nutritional value

fighting hidden hunger

1 USD spend in first 1000 days of life = 166 USD pay off

promoting local sourcing
**Stanyl®**

- high performance polyamide that provides unmatched performance and value for demanding applications in which superior heat resistance, design stiffness, wear & friction and process flow qualities are required (e.g. automotive)
- EU automotive sector were facing CO2 emission penalties for every car sold; with engine friction being a major contributor to emissions
- ideal for extremely high-performance application; retains its mechanical properties at high temperatures up to 230°C

- cutting down engine friction = reducing emissions
- if 60 million cars used it, it would reduce CO2 emissions by 900KT/year
- retains its mechanical properties at fierce temperatures
Veramaris®

- disruptive new algae-based technology producing omega-3 fatty acids EPA and DHA that are critical for aquaculture feed
- reducing the need for omega-3 EPA and DHA derived from wild caught fish, a finite resource
- reduce pressure on over fishing
- enabling the aquaculture industry to grow sustainably and become a net fish producer
- addressing the decline in omega-3 levels in Salmon
- Veramaris® is a joint venture with Evonik

essential for health: Fatty Omega-3 acids
contributing to preserving marine biodiversity
1kg Green Ocean oil is equivalent to 60kg wild catch
VevoVitall®

- using acidifiers and other ‘eubiotics’ with proven antimicrobial properties, VevoVitall® Eubiotics optimizes gastrointestinal functionality and the health of livestock animals
- crucially, this enables the removal of antibiotics for growth promotion
- use of feed antibiotics as growth promoter, in particular, is a highly contentious issue
- improves feed efficiency, enabling farmers to use less feed, which leads to more sustainable farming

safe feed alternative to antibiotics

healthier and stronger animals

helping tackling the issue of AMR