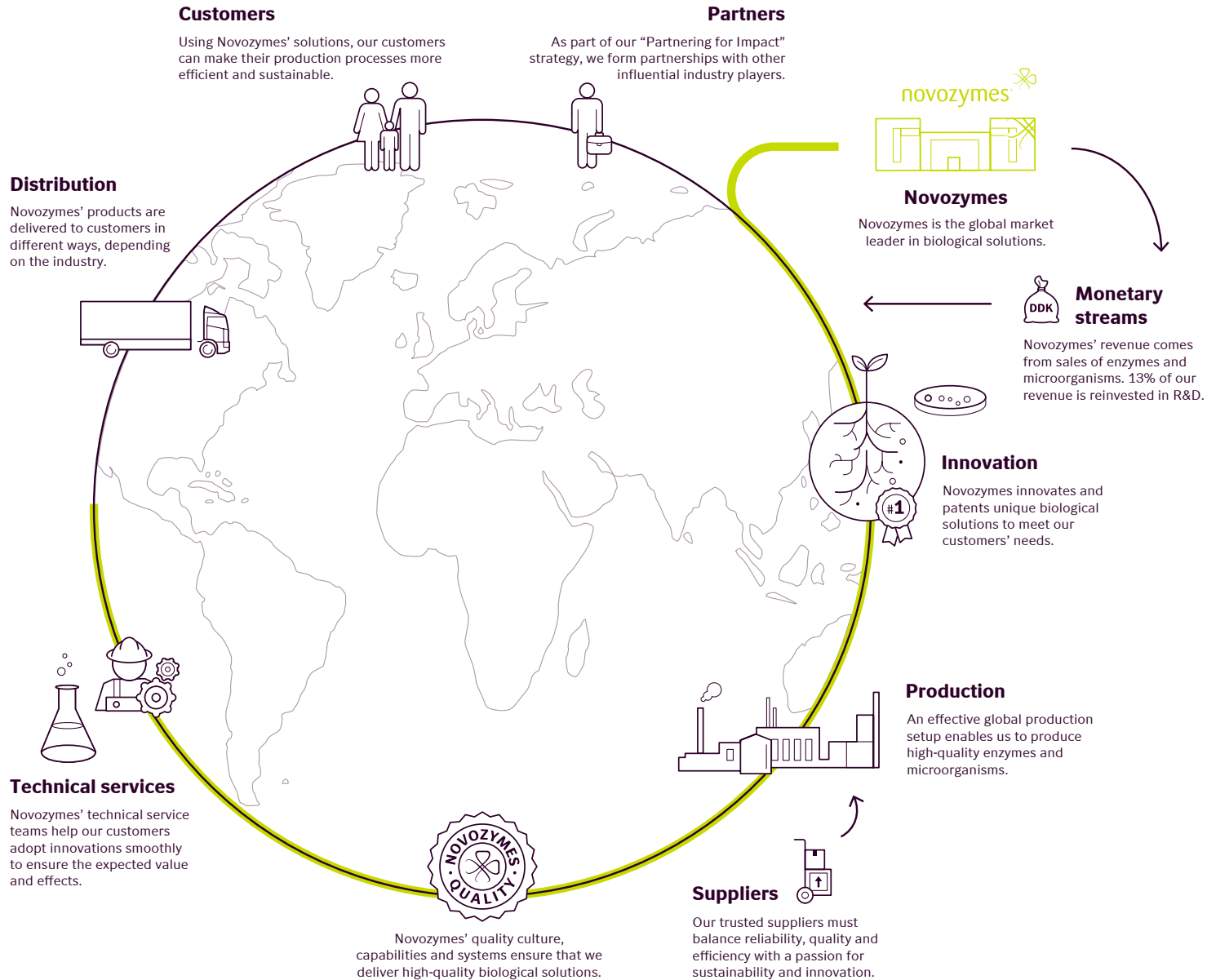


Business model



Macro trends that impact our business model



Transition to sustainable agriculture



Energy transition



Shifting demographics and urbanization



Water scarcity



Digitalization of the global economy

Our business is about turning amazing science into sustainable biological answers in a growing world. We use a wide range of enzymes and microorganisms to unlock business opportunities. From enabling farmers to grow crops more sustainably to enabling parents to tackle mud stains on their children's clothes, our innovations are paving the way for a better tomorrow.

Our business model and our strategy provide us with a solid foundation for living up to our purpose and meeting our long-term goals.

Sustainability comes naturally

Sustainability is a crucial part of all our products – and a key part of both our value proposition and our business model. Sustainability is also evident in our agreements with suppliers and partners, as well as in our production.

We believe that it is important to optimize our use of resources and minimize our footprint. We therefore set ambitious targets for reducing resource consumption and CO₂ emissions. Alongside unique consumer benefits, customers see sustainability as a differentiator – something that sets them apart from the competition while positively driving change. We prove our commitment to green solutions by tracking and documenting the annual impact savings from customers' applications of our products.

Our dedication to sustainability goes beyond our products. When the UN published its Sustainable Development Goals (SDGs) in 2015, we integrated them into our business. These goals highlight global issues such as clean water, climate, energy and transport, and food security. They also guide our purpose and long-term targets.



Customers

Novozymes' enzymatic and microbial solutions enable our customers to cut costs and lower the environmental footprint of their products and processes by reducing or substituting raw materials, conserving resources or improving product quality and effectiveness. We work closely with our customers to gain a better understanding of their needs and how our solutions can help solve the challenges facing consumers.

We see our customers as our partners, and we recognize that our products impact their production processes. That is why we work with them to identify their needs and develop solutions that enable them to enhance their impact.



Partners

As part of our Partnering for Impact strategy, we form partnerships with other influential industry players, for example Monsanto as part of The BioAg Alliance, and DSM in Animal Health & Nutrition. These partnerships benefit from our strong innovation skills and manufacturing expertise as well as from

our partners' strong skills in areas such as screening, testing, data processing and commercialization. Partnerships enable Novozymes to explore and enter new business areas faster and more efficiently.



Innovation

The starting point for all our innovation is understanding the changing needs and expectations of our customers and partners. With R&D facilities in many regions and commercial teams with strong insights into the different markets, we are able to identify enzymes and microorganisms to suit global and regional needs.

More than 23% of our employees work in R&D. Every year, our researchers screen thousands of microorganisms to find the one that produces the enzyme with the exact characteristics we need for a specific product. Most of our products take 2-5 years to progress from idea to market.

To ensure that innovation takes place as close to our customers as possible, our specialized application development units are positioned in the commercial side of our organization within the Household Care, Agriculture & Bioenergy and Food & Beverages divisions. This creates a strong connection between the commercial side and R&D, and means that more impactful products enter our pipeline.

A Portfolio Board manages the R&D pipelines and prioritizes funding across Novozymes' divisions. This board ensures that the innovations we bring to the market have strategic and financial impact, and that they contribute to delivering on the SDGs.



Production

In order to produce large amounts of enzymes, we use fermentation techniques to enable our microorganisms to multiply. Fermentation is a core part of our production process. After recovering enzymes from the fermentation process, we prepare them for use by customers, either in the form of liquids or granulates. We produce our enzymes at eight plants across four continents, and continuously endeavor to optimize and innovate our production processes to ensure that we get the most out of our production capacity.



Suppliers

Novozymes has an efficient supplier management system to ensure that our suppliers balance the importance of reliability, quality and efficiency with our passion for sustainability and innovation.

We work closely with our suppliers to innovate and implement responsible and sustainable solutions.



Quality

Our unique relationships with our customers allow us to anticipate and understand their needs and, consequently, deliver high-quality solutions. At Novozymes, quality is about more than just product quality. We also strive for excellence in the processes and services we provide to our customers.

Continuous monitoring and improvement are integrated into our quality system and are a cornerstone of how we advance the products and services we offer to our customers.

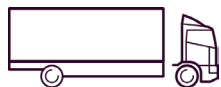


Technical services

Novozymes' technical service teams help customers adopt each innovation smoothly to ensure that the expected value is achieved. Teams work with customers on site to ensure that Novozymes' biosolutions deliver in specific production environments. The extent of a technical service team's involvement depends on the complexity of the production process at the customer's plant.

Our technical service teams set us apart from the competition because they optimize the use of our products and make the necessary adjustments in line with individual customers' needs. The knowledge gained from interactions

with customers also feeds back to our product pipeline and helps future innovations.



Distribution

Distribution of Novozymes' products differs from one industry to another. In Bioenergy and Household Care, most products go directly from Novozymes to customers. Within Agriculture & Feed, distribution is carried out by our industry partners. Food & Beverages and Technical markets are more fragmented, with a mixed distribution setup.



Monetary streams

Novozymes' revenue comes from sales of enzymes and microorganisms. Product prices include the cost of technical services. Around 13% of our sales is reinvested in R&D, benefiting both product innovation and production economy.

Novozymes' most significant cost drivers are direct production costs and R&D.

When it comes to shareholder returns, until 2017, we had a target dividend payout ratio of 40%. As that target has now been reached, it will be proposed at the Annual Shareholders' Meeting in March 2018 to increase the long-term payout ratio to ~50%. We also conduct regular share buyback programs to provide returns for investors.

Partnerships expand the reach of our solutions in Agriculture

In line with our "Partnering for Impact" strategy, Novozymes engages in a number of partnerships which enable us to combine our knowledge with that of other strong industry players. Here is a brief description of some of these partnerships:

- **The BioAg Alliance**
Established in 2014, The BioAg Alliance brings together Novozymes' BioAg operations and capabilities within microbial discovery, development and production with Monsanto's microbial discovery, advanced biology, field testing and commercial capabilities. The collaboration helps farmers globally meet the challenge of producing more with less in a sustainable way – for the benefit of agriculture, consumers, the environment and society at large.
- **The Feed Enzyme Alliance**
The Feed Enzyme Alliance works to improve go-to-market service models and tools in Animal Health & Nutrition. Through this collaboration, Novozymes and DSM are working to enhance our ability to bring new and more efficient feed enzymes to the market as quickly as possible.
- **Adisseo partnership on probiotics for poultry**
Adisseo and Novozymes have partnered to develop and market the probiotic Alterion® for poultry. Novozymes is responsible for in vitro screening, development and production, while Adisseo manages in vivo testing, marketing and sales. Alterion® gives farmers better control over the gut health of their animals.
- **Boehringer Ingelheim partnership on probiotics for hatcheries**
Novozymes has entered into a strategic collaboration with Boehringer Ingelheim to deliver probiotics for poultry hatcheries. The collaboration includes R&D, production, marketing and sales of a portfolio of probiotic products providing birds with beneficial bacteria, offering an alternative to antibiotic growth promoters.



Global trends that impact our business model

Novozymes' business model is open to external input, meaning that global macro trends can impact our sales and profitability across different sectors. The top five global macro trends that impact Novozymes' business are:



Transition to sustainable agriculture

There is growing pressure on the global food system – driven by demographics, consumer pressure and climate change-related supply chain disruptions – to produce more with less. As a result, there is strong demand for solutions (microbials, plant genetics, big data, sensors, etc.) to improve farm productivity and grow more food from the same arable land.



Shifting demographics and urbanization

In the future, global consumption is expected to be driven by three key demographic factors: rapid urbanization, a growing middle class in emerging economies and an aging population in most developed economies. These consumers need simple, convenient and sustainable solutions to address for example air and water pollution and meet healthcare needs.



Energy transition

Society is increasingly relying on electricity to meet its energy needs for daily consumption, but also for heat and mobility. This trend, together with the resurgence in natural gas and the declining cost of renewables, is driving a major shift in the global energy system. At the same time, the growing heavy transportation sector (aviation, shipping, etc.) is still dependent on fossil fuels and needs low-carbon alternatives.



Water scarcity

Global demand for clean water is expected to outstrip supply by 2030, exacerbated by climate change-related weather crises and severe pollution. There are growing calls for stronger government regulation and greater investment in infrastructure and water-saving solutions.



Digitalization of the global economy

Digitalization is transforming manufacturing, business models and the nature of work itself. Companies are using new digital technologies (blockchain, big data, 3D printing, etc.) to increase production efficiency and agility, and want solutions tailored to their specific needs.



Innovation pipeline update

Area	Innovation	Feasibility	Discovery	Development	Launch	Commercial
Household Care	Freshness & hygiene	✓	✓	✓	→ ●	
Household Care	Tailored emerging-market solutions	✓	✓	✓	→ ●	
Food & Beverages	Vegetable oil processing	✓	✓	✓	→ ●	
Food & Beverages	Grain milling	✓	✓	✓	→ ●	
Agriculture & Feed	Animal health	✓	✓	✓	●	
Agriculture & Feed	New transformative BioAg solutions	✓	✓	→ ●		
Bioenergy	Biomass conversion	✓	✓	✓	●	
Technical	Solutions for water	●				

* Arrows denote advancement to the next phase over the past 12 months.

Novozymes’ innovation pipeline contains more than 100 research projects across the business. In 2017, Novozymes launched eight new products. The table shows some of the major innovation areas. These areas represent significant market-expanding growth opportunities, most with the further potential to impact the world in a sustainable way, enabling us to live up to our purpose of delivering biological answers for better lives in a growing world. In 2017, progress was made in most programs – four of which resulted in product launches. Five of the eight existing programs progressed to the next phase, and one new program – “Solutions for water” – was added.

In **Household Care**, the first product from the freshness & hygiene platform was launched in December 2017. Freshness & hygiene solutions deliver completely new functionality, and consumers experience clothes that feel cleaner and fresher.

With Progress® In, we delivered the first specifically developed enzyme solution tailored for the broad markets of unpenetrated detergents making enzyme-enabled laundry benefits available to more consumers. Following these launches, both programs advanced to the “Launch” phase of the pipeline.

In **Food & Beverages**, we saw significant development within the grain-milling program with the launch of Frontia®, a solution enabling grain-milling processors to obtain significantly more starch and gluten during the grain fiber-milling process yet with lower water and energy consumption.

In vegetable oil processing, we launched Palmora®, which improves yield and process performance in palm oil production by reducing viscosity in the production process and improving the separation of oil from the palm fruit pulp. Both programs advanced to the “Launch” phase after the first products were launched in the second quarter of 2017.

In **Agriculture & Feed**, all three innovation tracks progressed. The animal health platform covers a broad portfolio of projects, including the animal probiotic Alterion®, which we launched together with Adisseo, but also more projects, which we will be more detailed about in 2018.

The development with Monsanto of new transformative microbes for corn, soybeans and wheat progressed to “Development.” These new BioAg products open up opportunities in brand-new crop categories and bode well for the potential of The BioAg Alliance. The enhanced corn inoculant Acceleron® B-300 SAT, which we launched together with Monsanto, has been commercialized and has therefore been removed from the innovation pipeline overview.

In **Technical**, we added “Solutions for water” as a new innovation program. We are exploring the feasibility of biotechnological solutions that target key challenges within water and wastewater treatment.

We find the water treatment space to be an exciting opportunity for Novozymes to leverage our core technologies to help address one of the world’s most significant challenges.