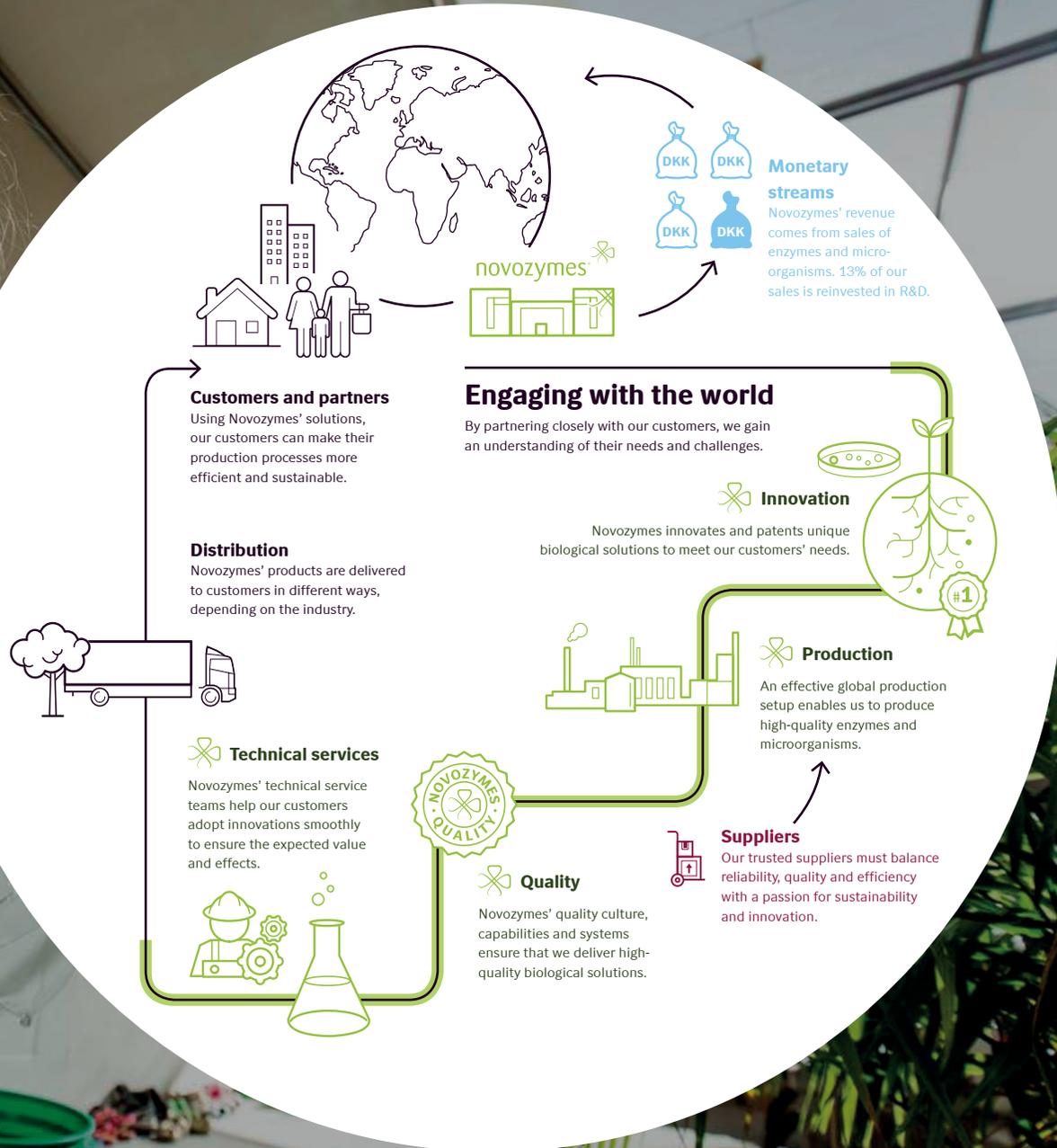


Business model

Novozymes produces a wide range of industrial enzymes and microorganisms. Together with our partners, we turn to biology to unlock business opportunities across industries. We create microorganisms that help farmers achieve a better harvest and support sustainable agriculture. And we deliver biological innovation to producers of ethanol, bread, detergents, textiles and many other products. In brief, our business model is to develop biotech solutions to the world's pressing problems, profit from doing so, and then reinvest in finding more biological answers.



Explore Novozymes' interactive business model report2016.novozymes.com

By looking for new enzymes and microbial technologies or improving existing ones, we deliver and apply innovation that has an impact and creates value for customers, improving performance and reducing costs. Our business model fits well with current and future global macro and industry trends. Together with our strategy, it forms the framework for our operations and will ultimately enable us to achieve our long-term targets and deliver on our purpose. Of course, there are also risks associated with Novozymes' operations and with opportunities not materializing, and these are presented in the Risk management section.

Sustainability and business go hand in hand

Sustainability is an innate part of all Novozymes' products and a key part of Novozymes' value proposition and business model. Sustainability is also evident in our agreements with suppliers and partners, as well as in our production. We have ambitious targets for reducing our resource consumption and CO₂ emissions, as well as a strong focus on providing a safe and motivating working environment for our employees. With climate change high on the political and public agenda, our focus on sustainability is an advantage as customers look for sustainability as a differentiator. Our long-term target for global CO₂ savings resulting from customers' application of our products enables us to track and document our impact.

Our dedication to sustainability goes beyond the products we offer to our customers. When the UN Sustainable Development Goals (SDGs) were published in September 2015, we started working on ways to integrate these into Novozymes' business. The SDGs highlight environmental, economic and social issues of global importance, such as eradicating poverty,

investing in sustainable water, energy and transport infrastructure, and enabling food security. Our purpose and our long-term targets are guided by these goals.



[Read more about our targets in the Targets section](#)



Customers and partners

Using Novozymes' enzymatic or microbial solutions, customers save on costs and minimize the environmental footprint of their production by reducing or substituting raw materials, saving resources and energy, or improving product quality. By partnering closely with our customers, we gain a better understanding of their needs and challenges. In turn, we help them to improve their business by providing new insights and innovations that help them achieve their goals. Our integration with customers does not stop at innovation. In Household Care, for example, we have also begun working with key customers' commercial teams on branding, where our solutions provide a unique selling proposition that sets them apart from their competitors. We help our customers to understand the value our solutions bring to their products and the benefits that consumers will experience.

In line with its strategy "Partnering for Impact," Novozymes partners closely with other companies, such as Monsanto in The BioAg Alliance and DSM in animal feed. These partnerships benefit from Novozymes' strong innovation skills and manufacturing/fermentation expertise as well as our partners' key skills in areas such as screening, testing,

data processing and commercialization, and make it possible to meet customer and consumer needs more effectively. Partnering with other companies gives Novozymes the opportunity to explore and enter into new business areas faster and more efficiently. For example, partners such as Monsanto can move large volumes through their network of distributors, providing Novozymes with a greater reach, enabling us to bundle more solutions and integrate these later in the customer value chain.



Engaging with the world

The SDGs have guided Novozymes' long-term targets for fulfilling its purpose to find biological answers for better lives in a growing world. To do this, we need to work together with partners such as customers, consumers, suppliers, governments and academia, and we need to open up our business model to take in ideas from outside the company. We partner with the UN and other governmental institutions to further sustainability objectives, and with academia to improve and expand fundamental research. We take part in dialogues on the world's pressing challenges, develop solutions to some of those challenges, profit from doing so, and then reinvest in finding more biological answers.



Innovation

Novozymes' solutions are derived from nature. We set out to solve a problem – be it cleaning clothes, breaking down biological material for ethanol or helping animals to stay strong and healthy – based on our extensive knowledge of

enzymes and microorganisms. In fact, when we innovate with enzymes, we screen thousands of microorganisms to find the one that produces the enzyme with the exact characteristics we need for a specific product.

Most of Novozymes' products take between two and five years to go through the innovation pipeline from idea to market, but can sometimes take less than a year (e.g. in Bioenergy) or more than five years. For some industries, especially within food and feed products, there is a lengthy and comprehensive regulatory process before a product can be sold commercially. Novozymes also continuously updates and reinnovates its product portfolio to maintain product value and generate new patentable innovations.

In 2016, we established a new Portfolio Board to manage the R&D pipeline across Novozymes' divisions. This board evaluates all of the projects in the pipeline based on a number of criteria, including strategic impact, financial impact and contribution to delivering on the SDGs. That way, we ensure that the innovations we bring to market are in line with our long-term targets and purpose. This way of working is not entirely new to us: Environmental and social issues have long been a consideration in how we set priorities, and we have many years' experience of using life cycle assessments (LCAs) successfully to scale our research and measure the effect our biological solutions have on the environment.



Once our innovation teams have tested and prepared an enzyme for an industrial process,

we apply that enzyme to a set of fast-growing microorganisms – our “workhorses” as we call them. Microorganisms produce enzymes, and an important part of our production process is to identify the microorganisms that produce the exact enzymes we need for each production process. One microorganism only produces a grain of sand’s worth of enzymes, and industrial processes often require an entire beach. To produce these vast amounts of enzymes, we make the microorganisms multiply using fermentation. Having recovered the enzymes after the fermentation process, we prepare them for use by our customers. Our global production setup enables us to do this wherever the necessary technology and skills are available. Currently, we produce our enzymes at eight plants across four continents.



Suppliers

Through an efficient supplier management system, Novozymes ensures that its suppliers balance reliability, quality and efficiency with a passion for sustainability and innovation. We partner closely with them in an effort to innovate and implement responsible solutions that have an impact on the world.



Quality

The ability to anticipate and understand customers’ present and future needs allows Novozymes to deliver high-quality biological solutions. At Novozymes, quality is more than product quality; it also covers processes and services related to how we do business with

our customers. Continuous surveillance and improvement are integrated components of Novozymes’ quality system and the cornerstone of how we advance the services we offer to customers.

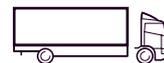


Technical services

When solutions are ready for application in customers’ value chains, Novozymes’ technical service teams help them adopt each innovation smoothly to ensure that the expected value and effect are delivered. These teams work on the ground at customer sites to make Novozymes’ biosolutions a success in the specific environment where they are used. These implementation taskforces innovate for our customers as their technical experts, problem-solvers and advisers. For instance, our technical service teams help customers replace other inputs with an enzyme solution or perform troubleshooting at the customer’s production facilities. They also adjust enzyme combinations to suit local recipes, for instance in the brewing and baking industries. Technical service teams are used more extensively in some industries than others, depending on the complexity of the production process at the customer’s plant.

Our technical service teams set us apart from our competitors because they are able to optimize the use of our products and make the necessary adjustments to maximum effect for the customer. Working closely with customers, they combine Novozymes’ global R&D capacity with deep industry experience to bring customers new value. The knowledge gained from interactions with customers also feeds back to our product pipeline and

helps future innovations, so together we can evaluate our progress and rethink tomorrow.



Distribution

The distribution of Novozymes’ products to customers depends on industry dynamics. Within Agriculture & Feed, distribution is conducted by our partners in the industry, Monsanto, DSM and Adisseo, as they are responsible for the commercial aspects of our partnerships in addition to testing and regulatory aspects. In Bioenergy and Household Care, most distribution is direct from Novozymes to customers. In Food & Beverages and Technical, markets are more fragmented, and we therefore have a more mixed distribution setup.



Monetary streams

Novozymes’ revenue comes from sales of products – enzymes and microorganisms. Technical services are included in the price of the product. Around 13% of revenue is reinvested in R&D, benefiting both product innovation and production economy. Novozymes’ most significant cost drivers are direct production costs, R&D and technical services. In terms of shareholder remuneration, Novozymes has a target dividend payout ratio of around 40% and conducts regular share buyback programs to provide a return for investors.



See our economic contribution in 2016 in brief

New organization to increase innovation and agility

In February 2016, Novozymes was reorganized in order to unlock its full growth potential and to deliver more innovation to customers with more speed and commercial impact.

Until February 2016, Novozymes was organized in five functional units: R&D, Supply Operations, Business Operations, Business Development and Corporate Functions. After nearly three years, the Executive Leadership Team and the Board of Directors agreed it was time for a change.

Three divisions and two units

The 2016 reorganization affected all areas of Novozymes and saw the formation of three new divisions: Household Care & Technical, Agriculture & Bioenergy, and Food & Beverages. Each of the divisions is responsible for application research, technical service, sales and marketing. In addition, two new functions were created: Research, Innovation & Supply, aimed at enhancing the strength and scale advantage within science and manufacturing, and Corporate Functions, uniting cross-company areas such as Finance, Investor Relations, Legal, IT, HR, Sourcing, Global Business Services, Facility Management and Communications.



See the press release at Novozymes.com

Business model characteristics across industries

Industry	Household Care	Food & Beverages	Bioenergy	Agriculture & Feed	Technical & Pharma
Solutions	Enzymes	Enzymes	Enzymes and micro-organisms	Enzymes and micro-organisms	Enzymes and micro-organisms
Selected product areas	Laundry detergents, hand and automatic dishwashing soaps, professional cleaning products	Baking (freshness, product appearance, dough improvement, etc.), brewing (fermentation control, separation and filtration, etc.), food & nutrition (lactose-free dairy, removal of trans fats, etc.)	Cellulosic ethanol, starch-based ethanol, enzymatic biodiesel, sugarcane ethanol	Animal feed (feed enzymes), animal health (probiotics), aquaculture (microbials), plant health and crop yields	Textile processing, pulp & paper production, leather preparation, pharmaceuticals (pharma enzymes), wastewater treatment solutions
Innovation model	Novozymes' R&D teams work very closely with customers' R&D teams	Novozymes' R&D teams work very closely with customers' R&D teams	Novozymes' R&D teams get input from customers and develop solutions independently of customers' R&D teams	Novozymes' R&D teams work very closely with partners' R&D teams	Novozymes' R&D teams get input from customers and develop solutions independently of customers' R&D teams

Innovation pipeline update

Novozymes' innovation pipeline contains more than 100 research projects across the business. In 2016, Novozymes launched eight new products. The chart on the right shows some of the major innovation areas in which Novozymes is investing. All these eight innovation programs represent significant market-expanding growth opportunities in terms of sales, and most also have the potential to impact sustainability positively. In 2016, progress was made in all programs, including two product launches. Four of the seven existing programs progressed to the next phase, and one new program – grain milling – was added in Food & Beverages.

In Household Care, hygiene solutions build on the functionality of stain removal and target consumers' clothes having a more complete feel of cleanliness and freshness. Tailored enzyme solutions for emerging markets is another area of research, as these geographies require special solutions and innovative approaches at low cost. Both programs remain in the "Development" phase, and the first products are on track to be launched in 2017.

We have made significant progress in Food & Beverages with our technology for improving yields in vegetable oil processing, and the status for the platform has been moved from "Discovery" to "Development." A new track for grain milling has also been added, as this is a new area where we are looking into the feasibility of using enzymes to increase efficiency in the milling step of grain-processing facilities.

In Agriculture & Feed, all three tracks progressed, with the new corn inoculant Acceleron® B-300 SAT being launched with Monsanto, and the new animal probiotic Alterion® being launched together with Adisseo. The development of new transformative microbes for corn, soybeans and wheat, together with Monsanto, also progressed. These new BioAg products will further add to the division's growth potential.

In Bioenergy, our partners have seen increasingly stable production of biomass-based ethanol and higher utilization rates throughout 2016, and further improvements are expected in 2017.



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