

Innovating for a changing world

At Nestlé, continuous innovation is part of our DNA. Our success is founded on over 150 years of anticipating trends and understanding consumers' needs. This approach remains fundamental to our strategy. Nestlé has the most advanced science and innovation network in the food and beverages industry. This enables us to translate our knowledge into highly-relevant products and services for our consumers.



Our understanding of the relationship between nutrition and health is continually evolving. Nestlé's researchers are looking ahead to discover how we can further enhance quality of life and contribute to a healthier future. At our different sites across the world, including the Nestlé Research Centre and the Nestlé Institute of Health Sciences, we are working to discover, develop and deploy new products and services that we aim to scale up rapidly.

To augment our own capabilities, we also collaborate with leading universities, research organisations and start-ups. Likewise, we have a number of innovation partnerships with ingredient suppliers and equipment manufacturing companies to accelerate product and technology development.

Creating tastier and healthier products

We are constantly looking for ways to improve the nutritional profile and taste of our products. Our scientific and technological solutions are inspired by nature.

In 2017, over 60% of our R&D budget was dedicated to developing more nutritious products. For our food and beverages categories, the focus remains on developing tastier and healthier offerings. We also continue to deliver specific health benefits through our products in categories like infant nutrition and health science.

Using food material science, we can increase the sensorial impact of the ingredients we use. For example, our research shows that parts of the ingredients that deliver taste are not fully released or dissolved during eating. Hence, they are not interacting with the taste buds. Applying our knowledge, we can increase the amount that dissolves in the mouth. This allows us to reduce the amount of the ingredient, while keeping the same perceived taste, and make new products that taste good and use fewer ingredients like sugar, salt and fat.

Our groundbreaking work in sugar reduction is an example of this. By structuring sugar differently, we were able to make it dissolve in the mouth quicker. This means we can use significantly less sugar in our confectionery products, while ensuring the same great taste. We have scaled up the production of this new

structured sugar, and are delivering the first confectionery product containing it in 2018.

Enhancing infant and maternal nutrition

Through our research, we know that metabolism and, to some extent, taste preferences are programmed at an early age. We also know that these dietary preferences and patterns can have an impact on health for years to come. So, providing optimal nutrition for infants and young children in the first 1000 days of life – from conception to their second birthday – is crucial.

Our focus on the first 1000 days also includes understanding the nutritional needs of mothers from conception of a child to breastfeeding. Maternal nutrition is one of our main research areas today. To this end, we are working in partnership with a number of universities around the world. In one of the largest public-private partnerships of its kind, we are looking at the impact of nutrition and lifestyle on maternal and infant health in collaboration with the EpiGen Global Research Consortium.

Food sensitivity and allergies in infants is another key area of research. A number of babies and children suffer from cow's milk protein allergy. To help their parents and doctors to better manage their dietary needs, Nestlé Health Science has developed a range of nutritional solutions (*Althéra*, *Alfaré*, *Alfamino*). It has also developed tools that enable early and accurate diagnosis of the allergy.

Breast milk is the ideal nutrition for babies. For babies that cannot be breastfed, we continue to deepen our understanding of the composition of breast milk. Our mission is to innovate and offer the next best alternative.

Human milk oligosaccharides (HMOs) are the third most abundant component of breast milk. They play a key role in an infant's healthy development and well-being, supporting the baby's immune system and promoting healthy gut microbiota. We are the first company to produce two varieties of HMOs on an industrial scale for our NAN infant formula range.

Understanding the microbiome

The billions of bacteria that live in our gastrointestinal tract are known as the 'human



Enhancing infant and maternal nutrition
Our researchers are focusing on the nutritional needs of both mothers and babies. Products like *NAN Optipro* provide the right amount and quality of proteins needed for babies' growth.

gut microbiome'. They make up the internal ecosystem that influences people's overall health.

As science and technology advances, we see how important the microbiome is in helping to shape people's health. That is why our interest in the human gut microbiome goes beyond infants, to include adults and the elderly. Through Nestlé Health Science, we are strengthening our collaborations with external research partners.

Nestlé Health Science's partner, Seres Therapeutics, is a leader in the field. It is exploring its microbial strains to develop therapeutics that aim to restore a healthy microbiome.

This year, Nestlé Health Science also entered a partnership with Enterome, jointly creating Microbiome Diagnostics Partners. It seeks to develop diagnostics tools to support personalised therapies in microbiome-related diseases, such as inflammatory bowel disease (IBD).

Supporting healthy ageing

Nutritional needs evolve with age as the body's ability to efficiently metabolise and absorb nutrients declines. The resulting lack of essential nutrients can then impair body functions, cause feelings of fatigue or weakness, and lead to mobility issues. To support the nutritional needs of a growing ageing population, we have substantially expanded our R&D capability.

Some of our research has already been applied to products like Nestlé Health Science's *Boost* and *Meritene* ranges. Both are designed for individuals who need extra nutrition to fill gaps in their diets. These products provide missing nutrients that can help active seniors enjoy a better quality of life.

We know that the same diet can have very different effects on different people, as we each have unique nutritional needs and a unique microbiome. Hence, we are also developing personalised programmes for individuals.

Personalising nutrition

By giving people a better understanding of their own individual nutritional status, lifestyle, environment and genetics, we can help individuals to preserve their health throughout life.

Both the Nestlé Institute of Health Sciences and the Nestlé Research Centre are working in this field to develop more personalised solutions using the 'Internet of things'. As part of this work, we have begun collaborations to harness the power of nutrition science and digital sensor technologies.

Through our expertise in systems-based technology, we are moving towards providing personalised nutrition solutions in and out-of-home. These are based on the personalised experience we already offer through our beverage systems.

We envisage a future where sensors and devices in our daily lives, such as mobile phones, wearables and 'smart' appliances, can connect with each other. The data they provide can help us to understand our nutrition and activity, and guide us towards a healthier and happier life.

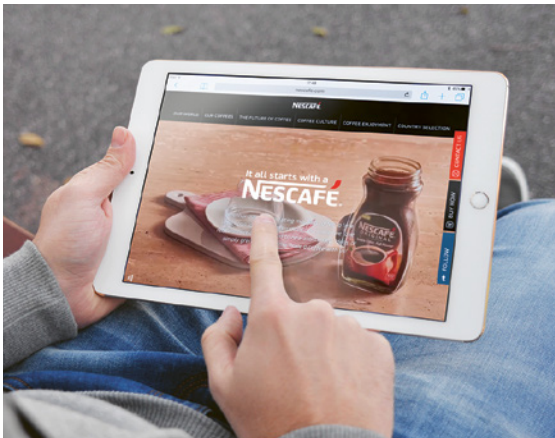
Innovating in digital

As well as researching nutrition science and food technology, we also find and develop



Supporting healthy ageing

Research shows that special nutrition may help to manage normal age-related changes. Our *Meritene* formulas contain nutrients such as dietary fibre, protein, vitamins and minerals to support the needs of active seniors.



Innovating in digital

New mobile platforms developed for our brands like *Nescafé* have brought us closer to younger consumers, and increased direct sales through 'buy-now' buttons.

new business services, and invest in new food business models to access new ideas and new paths to market. This year we partnered with the Terra Food and Agriculture Technology Accelerator, to select and coach some of the most innovative and disruptive start-ups in the food and agricultural industry.

We are developing new digital services to enhance the personal consumer experience through our brands. To this end, our Silicon Valley Innovation Outpost (SVIO) acts as a hub for sourcing and developing new digital solutions to build our brands. Here we focus on consumer data and intelligence, then identify and apply digital innovations from start-ups and emerging technology partners to support brand engagement.

Our open innovation platform Henri@Nestlé enables entrepreneurs to work as collaborative partners alongside Nestlé teams to tackle social and Nestlé business challenges. It gives us access to the fast-moving start-up mentality and entrepreneurial spirit that a global company needs to stay ahead.

These are just a few of the ways we are constantly building a deeper understanding of nutritional science, and developing products and services that enable us to fulfil our purpose: enhancing quality of life and contributing to a healthier future.