



Strategic Plan

2015 18



WAGENINGEN
UNIVERSITY & RESEARCH

Strategic Plan

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Wageningen University & Research

Executive Board



This strategic plan is an extraordinary plan. It not only describes the direction Wageningen University & Research will take over the next four years but also demonstrates the unique strength of our organisation. In 2018 we will celebrate our 100th anniversary to commemorate the start of a collaboration that has developed over the past century into today's unique combination of fundamental and applied science, education and research.

Since our inception, we have been driven by our desire to make a significant impact. This is our inspiration: *Science for Impact*. We contribute to solutions for major social issues such as the world food problem, climate change, the development of a circular economy, conservation of nature and biodiversity, and poverty reduction.

Our reputation, and more importantly, our relevance, is recognised world-wide. The Netherlands, like no other country in the world, facilitates the development of *agrifood* and *biobased* expertise through an optimal collaboration between government, business, universities and research institutes. This 'golden triangle' is seen throughout the world as an example of innovation, and Wageningen University & Research plays an important role in this process.

The aim of this strategic plan is to build upon and strengthen this position. During its development, it became clear that there is a great deal of enthusiasm at Wageningen University & Research about the direction we have chosen. This has fully boosted our confidence in the realisation of this plan. Let's work together to ensure that our knowledge, our commitment and our quality lead to major innovations and a better world.

The Executive Board of Wageningen University & Research
Prof. Louise O. Fresco
Prof. Arthur Mol
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Introduction

This strategic plan describes Wageningen University & Research's ambitions for the period 2015-2018. We are doing better than ever, with themes in our domain that are relevant world-wide, high positions in the rankings of education and research institutions, a strong increase in enrolment at the university and a campus that is rapidly expanding with new buildings and businesses. We are maintaining this upward trend.

Results from the previous plan

Our current situation is partly a consequence of the strategic plan for 2011-2014. In this plan, we identified five key points: strengthen the market position of our applied research institutes, invest in new research themes, improve the quality of research and education, strengthen regional and international cooperation, and achieve operational excellence.

We have made clear progress on most of these points, and the targeted measurable performance indicators have been fully or partially attained. For example, we have exceeded our growth targets for national and international students, although we still have fewer European students than we hoped for. The university is still ranked Number 1 in the Netherlands Guide to Higher Education. Our researchers acquired the planned number of personal grants from NWO (Veni, Vidi, Vici). The result for the European grants (ERC) was slightly below expectations; the number of publications in highly-ranked scientific journals was above expectations.

We have surpassed our financial targets in the areas of solvency and the reduction of working capital, and

we have utilised our buildings more effectively. Wageningen Campus has become livelier and more industrious through the commissioning of new or renovated buildings for research and education (including Orion, Zodiac and Axis) or for support services (Actio, Nexus). The same can be said for the new Impulse building, our debate centre and meeting place. Various external partners, both companies and institutes, such as Campina Friesland, NIOO and STOAS Vilentum have opened facilities on the campus.

However, we have not met all of our targets. The turnover of the research institutes (excluding the revenue from the Ministry of Economic Affairs) has grown, but was less than our €50 million target. The study performance in the Bachelor's programmes rose substantially (from 61% to 73%), but the performance in the Master's programmes was slightly lower (from 88% to 86%). On the Shanghai Index we climbed from 36th to 32th place, but we had hoped for a ranking in the in top 30. The percentage of employee performance interviews rose from 66% to 78%, but we had aimed for 85%.



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A major change since the previous strategic plan is that we deliberately parted ways with Van Hall Larenstein (VHL) in 2013. The Executive Board, after months of discussion, concluded that the participation of VHL in Wageningen University & Research did not yield the desired added value, and from that time VHL has continued independently. As a result, VHL will also leave our campus in 2015.

Setting a new course

In conclusion we can say that we have achieved positive results in all aspects of the previous plan. It is therefore not surprising that we will continue on this path. However, we also anticipate some shifts in our current course caused by new developments.

Our reputation and the quality of – and appreciation for – our education and research give us a strong position. Our good connections with the EU and the business community, the complementarity of our fundamental and applied research and our focus on topical and relevant themes; these are strengths that we want to hold on to.

The complexity of the challenges we face requires that we put even more emphasis on multidisciplinary work and on achieving synergy in our fundamental and applied research. We are therefore working on improving the cooperation between various parts of the organisation (One Wageningen) and investing in research themes that lie at the interface between our



areas of expertise. We are developing the way in which we present ourselves to the outside world, both in our branding policy and when interacting with influential stakeholders (public affairs).¹

In education, we use new technology to more effectively meet the individual learning needs of the growing number of students and to approach new target groups. In both education and research, we work together with powerful and leading partners world-wide. On campus, we encourage economic activity by attracting businesses and facilitating start-ups.

Society demands more interaction with our organisation than ever before. We are therefore focusing more on engaging with society on the direction and content of our scientific research, and we are increasingly valorising this research in applications and innovations. Our organisation and its operational management are socially responsible and sustainable.

Our financial position

We currently enjoy a good financial position. The balance sheet for the research institutes and Wageningen University & Research is reading healthy levels, and the other financial parameters show that Wageningen University & Research has its financial house in order. However, this positive situation is under pressure. At this time, the university funding by the government is not keeping pace with the fast growth in student numbers. If this situation continues, then the net financial result for Wageningen University & Research is projected to be negative for several years to come, with solvency projected to fall. The outcome of the ongoing funding study from the central government can affect this situation.

Government funding for the research institutes will also continue to shrink through to 2018; compared to 2010, funding for the research institutes will fall by

about €47 million. To remain attractive partners for government and business and to continue to provide high-quality expertise, the research institutes will have to find new research commissions in other markets. This concerns not only the EU and the public-private market, but also the private sector.

We are thus anticipating severe financial pressure. Increasing our turnover in the research market, dealing with reduced funding for education while at the same time focusing on new strategic ambitions – together, these indeed pose a major challenge.

Implementing the plan

In this plan we have formulated strong ambitions and goals. To achieve these, we will work, as in the previous plan, with priority areas in annual plans. In this way, we will implement the plan in a step-by-step fashion, and we will not try to do everything at once. We will evaluate our progress and report annually.

Reading guide

The strategic plan begins with a brief discussion of the trends in our environment (Chapter 2). In Chapter 3 we describe our ambitions, and in Chapters 4 through 7 we address these ambitions in greater detail. Chapter 4 contains the plans for research, Chapter 5 the plans for education, and Chapter 6 the plans for value creation. In Chapter 7 we discuss the changes in the organisation that are required for us to achieve our ambitions. Chapter 8 contains several key performance indicators that we have formulated to measure the progress in executing this plan. ■

¹ In anticipation of this shift in course, in the current plan we no longer use the name DLO, but the term 'research institutes' *Strategic plan 2015-2018*

Trends and challenges

The world around us is changing quickly. Many developments and challenges are important when setting our course. The world population continues to grow, along with the need for healthy and safe food. We are overtaxing our planet's carrying capacity. The funding and management of research is changing. Technology and the growth in enrolment is influencing education. Society is becoming more engaged in our research and in our operations. Economic and international relationships are changing.

Growing population and overtaxing the Earth's capacity

In 2015, too many people are still deprived of sufficient, safe and healthy food. This problem is increasing because the population continues to grow and because global life expectancy is rising: by 2050, the Earth's population will have grown to approximately 9 billion people. Moreover, increasing prosperity is raising the demand for protein-rich food, and the ageing population is raising the demand for healthy food for the elderly. Due to the pressure on production, incidents involving food safety and fraud are becoming more frequent, and the declining trust of consumers is leading to an increasing need for control and enforcement.

World-wide, people are migrating to the cities, and the population is becoming concentrated in large metropolises that are often located on river deltas.

This urbanisation is accompanied by new challenges in food security, energy, transport and living environment. The growing world population is causing a heavier burden on the carrying capacity of soil, water and atmosphere. This is leading to climate change and a loss in biodiversity.

We are now faced with the urgent task of shaping the increasing global prosperity in a sustainable manner as part of *'the future we want'*. Both the United Nations (in the Sustainable Development Goals) and the Scientific Council for Government Policy in the Netherlands refer to the major global challenges of ecological sustainability, public health and a robust food supply.

These challenges require an interdisciplinary approach and a combination of fundamental and applied research. The EU programme Horizon 2020 formulates this strategy as follows: "Smart investments in



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research and innovation are essential to maintain our high standard of living and at the same time to respond to pressing societal challenges such as climate change, ageing or the transition to a resource-efficient society. Such challenges call for a problem-oriented approach, combining resources and knowledge from various fields, technologies and disciplines, including the social sciences and humanities.”

We see it as our challenge to continue to contribute to safe and healthy food and sufficient clean and fresh water for a growing world population, to continue the development and conservation of nature and biodiversity, and to establish a closed system through the sustainable use of the Earth and available resources.

Research: less funding and stronger management

Since 2010, government spending on research has shifted from direct funding of scientific research to indirect contributions to Research & Development (R&D) focused primarily on businesses. Between 2013 and 2018, direct government funding for research and development will decline in both absolute (-12%) and

relative (from 0.78 to 0.65 of GDP) terms². Part of the research budget has been transferred to the 'Top Sectors' programme, to ensure that private parties also invest in research, and that knowledge is translated sooner into innovations.

Due to the decline in national research funding, EU funding from the Horizon 2020 programme has become more important. However, this programme requires joint financing and the amount of future funding is still uncertain. The Grand Societal Challenges, formulated by the EU, offer strong guidance to the research programming. The EU prioritises the linkage of strong scientific centres with research institutions in weaker countries, the contribution to innovation, and public-private partnerships. The EU is also in favour of transparent science and expects Open Access to publications and Open Data through Horizon 2020.

² Rathenau Institute, Total Investment in Research and Innovation(TWIN) 2012-2018



The first challenge faced by Wageningen University & Research is to maintain sufficient funding for both applied and fundamental research. At the same time we are seeing increased competition. Because our domain of food and living environment is so relevant, other universities and research institutes are now moving into this field as well. Consequently, we are becoming even more proactive about seeking new markets and acquiring clients and funding. Particularly for our research institutes, it is crucial to maintain revenue by means of a market-oriented and professional approach.

The control exerted by government agencies, public bodies and businesses on the content of the research also influences the direction of our strategic knowledge development. The danger is that the magnitude of fundamental research will shrink and that it will lose its coherence and independent position. In addition to applied research, we believe that fundamental research is essential. This research can be inspired, but not completely determined, by societal issues and trends. This fundamental research creates the basis for facing entirely new challenges in the future. Moreover, it is this combination of fundamental and applied research that determines our impact in society.

Education: growth in digitalisation

Student enrolment in Wageningen is growing rapidly. Most of this growth consists of Dutch Bachelor's students; the growth in the number of international Master's students is lower. Nevertheless, the global demand for higher education is increasing greatly. The need for a highly educated workforce is growing in regions such as Asia, especially in China. To meet the continuous demand for state-of-the-art knowledge in Europe, the need for additional training for professionals is growing. This is due not only to postponed retirement, but also to the rapid changes in the job market.

In the meantime, technology is causing a revolution in education; it is becoming a product that can be purchased anywhere in the world, and fully or partially online. Online education has opportunities and

challenges. One advantage is that we can reach much larger groups of students all over the world. But competition in education is increasing world-wide, and there is also great uncertainty about the earning models suitable for online education. The development of digital teaching material requires major investments, so especially the wealthier universities are taking the lead in this area. Offering online education in modules will encourage students to start 'shopping' world-wide and select the most attractive education provider for each topic. But online education is characterised by frequent dropouts, so many are opting for blended learning: online education that is supplemented with face-to-face supervision by the institution. Both online education and blended learning require our lecturers to learn new skills.

Wageningen University & Research will deliberately choose its position in the global market for online education, determine which earning models are most suitable and decide how we will assure quality and prepare our lecturers and the organisation for these new forms of education. With online education we can respond more effectively to a wide range of target groups: Dutch and international students, full-time students, part-time students (professionals), students taking a complete degree programme and students taking a single module of course.

An important challenge is maintaining the quality of our education. This quality is determined by multiple factors, some of which are now under pressure. We are known for our small-scale education and the close contact between staff and students, which is under threat because government funding is not keeping pace with the growing enrolment. Nevertheless, we are aiming to maintain the small-scale approach while paying attention to the workload of lecturers. We are also striving to offer flexible education to meet the individual learning needs of students, which is simultaneously so robust that we are still able to give our students a strong foundation of scientific knowledge and academic skills. Finally, as a university we attach great importance to a balance between education and research; this balance is being

threatened by the rapid growth in student enrolment and because research often plays a greater role in academic careers than education.

Society: dialogue, value creation and transparency

All over the world, new technologies and the mobile internet are changing communication between people. The use of social media has become a normal form of social transaction, and internet access is available almost everywhere. Government agencies, public bodies, organisations and citizens interact more frequently and more directly. Large groups of people can organise themselves at lightning speed and without regard to location. Citizens are taking the initiative, finding their own information and making their own choices on how to organise aspects such as their health care, neighbourhood and energy supplier (the energetic society).

For solving societal problems, research is essential. The position of scientific research is changing: in the midst of an abundance of information and opinion, the legitimacy of scientific knowledge no longer appears to be self-evident, while the explicit demand for research to have societal or economic importance is increasing. Logically, businesses that invest in research expect that their investment yields tangible results. Another new aspect is that government agencies and public bodies want 'value for money' and link their research questions to societal challenges. The Dutch government has mandated that from 2016, universities must spend 2.5% of their research budgets on value creation. The allocation of research funding (e.g. at the EU or NWO level) hinges to an increasing degree on the extent to which an explicit reference to the value creation efforts is given.

For universities and research institutes this means that commissioning customers and citizens want to have more influence on the direction of the research. Our university and the research institutes have always been highly focused on the application and societal and economic value creation of our knowledge. Nevertheless, we too are being questioned more and more emphatically about the societal or economic

importance of our research. We are focusing more on value creation and on making this process more visible. We are seeking dialogue with our commissioning customers and with citizens. For applied research, challenges lie principally in the area of improving the transfer of knowledge to small and midsize enterprises (SME) – linked to regional hotspots – and to strengthen the interdisciplinary and customer-oriented approach.

Research funding agencies and governmental bodies are increasingly expecting the results of publicly funded research to be made publicly available. This applies to scientific publications as well as to research data. By 2024, the Dutch government wants all scientific publications in the Netherlands to be publicly available (publishing in open access journals). This should promote the exchange and circulation of knowledge as well as the innovative capacity of the country.

Society also expects organisations to operate with integrity and transparency, for example in their operational management or their cooperation with international partners. People want to see how organisations contribute to the environment and society and how they engage in socially responsible entrepreneurship. At the same time, regulatory pressure is increasing, and research funding that was previously acquired directly must now be acquired in competition with others. Transaction costs are increasing even though the budget is declining. This results in less funding for the research itself, thus reducing our efficiency.

Emerging economies and international partnerships

The main drivers of the world economy are in Asia and Latin America. Power relationships and trade streams are shifting. Sub-Saharan Africa is becoming less dependent on foreign aid, and the continent is expected to contribute more significantly to the world economy in the next decade. Dutch foreign policy is responding with an agenda focusing on "aid, trade and investment".



An increasing number of national governments in Asia and Latin America see higher education as the driving force behind economic progress and are therefore investing in higher education and scientific research. They hope that a well-educated local workforce can attract foreign capital and thus create new employment. Countries in Asia, particularly the middle-income countries such as Malaysia, are focusing not only on expanding access to university education, but also on developing their research capacity. African countries are also establishing national research funding agencies.

With our knowledge we can contribute to education and research in these emerging countries, and in this

way strengthen our international position. To do that effectively while preventing fragmentation, we must make smart choices for preferred partners and regions in which we are active. However, such partnerships are not exclusively international. To maintain our strong market position in education and research, we are looking for partners at all levels (local, regional, national, European and global) and in various categories. These could be universities and research institutes, but also government agencies and public bodies, businesses and civic organisations. We are maintaining our advantage and our reputation as a reliable, leading, international centre of expertise, and are therefore looking for partners that meet a similar standard. ■

Our ambitions

The themes on which we focus are highly topical. We provide knowledge and expertise in the areas of food, water, biodiversity, climate, behaviour and health and the world needs our knowledge to face serious challenges. We achieve synergy by combining education with fundamental and applied research. We focus on the world around us to identify important issues, to understand our stakeholders' concerns and to work together with partners on solutions and innovations. We are now one of the best education and research institutions, and we want to continue to hold this position.

Mission

We want to contribute to the availability of sufficient, safe and healthy food and clean and fresh water for the growing world population, while maintaining and developing a healthy and natural living environment. Our mission is:

"to explore the potential of nature to improve the quality of life".

Domain

Based on our mission, we focus on the domain of food and living environment. In that domain, we distinguish three related, partly overlapping core areas. The core areas have not changed since the previous strategic plan, but we now place more emphasis on the biobased economy and refer to the increased importance of natural resources. That is why we changed the names slightly: *Society and well-being*, *Food, feed and biobased production* and *Natural resources and living environment*.

The core area *Food, feed and biobased production* comprises the sustainable production and processing of food, feed and biobased products, international food chains and networks, food safety and the health aspects of food.

The core area *Natural resources and living environment* encompasses natural habitats, landscape, land use, the management of water, sea and natural resources and biodiversity.

Society and well-being studies human behaviour in relation to food and living environment, lifestyle and perceptions, but also focuses on institutions, governance, the market and chains, and societal innovations.

The boundaries of the core areas cannot be sharply delineated. The division into three core areas, therefore, primarily serves as a detailed description of our sphere of activity. However, given the trends



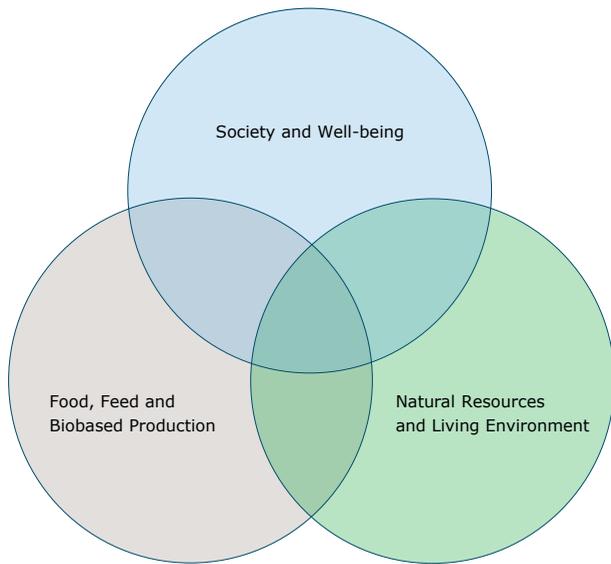


Figure 3.1 The three core areas in the domain of food and living environment

and our ambition, in practice we emphasise the coherence and overlap between the core areas. Many new insights and applications are generated in this overlap; an integrated approach is required to contribute to the major social issues.

Contributing to our domain

Our expertise

We focus on the major social and scientific challenges in the domain of food and living environment. In this way, we work on the sustainable production of livestock and crops, from propagation material to processing into food and non-food products. We are well-aware that the challenge of feeding the growing world population can overload the Earth's carrying capacity. We focus on the total system: careful production and processing of healthy food, sustainable use of soil, water and atmosphere, reduction of inputs of nutrients, auxiliary chemicals and pesticides, and reduction of greenhouse gas emissions. During this process, we pay special attention to sustainability and animal welfare. To improve production, we are conducting research into

product characteristics and product-related physiological processes, and are developing data processing models (Big Data), agrifood robotics and knowledge management protocols.

The global food systems are under increasing pressure to provide the world population with sufficient safe and healthy food, while at the same time their vulnerability is increasing. We provide knowledge for improving global and local food systems and for increasing the availability of essential nutrients in these systems. Our innovations focus on the development of sustainable food systems, value chains and markets that ensure safe and healthy food and are sufficiently stable to cope with risks (food security) and societal conflicts. To meet the growing global demand for protein, we want to remain a leader in research into alternative protein sources, such as insects and algae.

The health and well-being of animals and people are the result of genetic factors, external factors and choices made by citizens, government, manufacturers and consumers. We focus on improving food products and production processes, enhancing healthy choice behaviour and acquiring insight into the role of cultural and behavioural factors. Consumers make food-related choices based on information, but to achieve real behavioural change they require more than information alone. We are therefore conducting research into consumer acceptance of innovations in their daily food, with the aim of acquiring insight into the underlying factors and ways to influence these factors.

The Earth's ecosystem (*System Earth*) is complex; it encompasses all life on Earth and determines the well-being of people and animals. The intrinsic value of natural systems is just as important as the natural resources they contain. The global biodiversity crisis and the unrelenting strain on our natural resources require a more sustainable concept for the management and use of the earth. Due to climate change and human influences such as urbanisation and increasing land use for food and energy crops, we are faced with growing pressure on land and sea. Wageningen University & Research is working on

acquiring insight into system earth's capacity for recovery, and possibilities to improve that capacity locally and regionally. With our knowledge of soil, water, ecosystems, climate, social economics and governance we are learning to deal more effectively with changes in our ecosystems and with competing claims on land, sea and natural resources.

We are continually innovating through the development of new concepts, for example for nature-based multifunctional use of the living environment, or for Climate Smart Agriculture. Together with government agencies, public bodies and businesses, we are developing new business models for eco-innovations to enhance the green economy and to facilitate sustainable growth in the marine sector. Tapping energy from society also plays a major role in this process: we direct and utilise social creativity and energy by optimally combining our science with policy and by engaging various societal actors. We utilise new technologies such as Big Data: the large amounts of data generated online and through social media.

It is our mission to facilitate the transition to a circular economy founded on biobased raw materials. During this process, we focus on the entire chain, from propagation material to the consumer and the context of the chain (institutions and governance). The objective is to process natural resources efficiently into both food and non-food products. By closing these loops (circular economy), we ensure the long-term availability of biomass. In new, sustainable value chains, biomass can lead to the development of a sustainable chemicals and materials sector. We are developing local and mobile biorefinery concepts, resulting in a reduced need for transport. The risk of accumulation and depletion of minerals is reduced. In addition, we study the social and economic consequences of feed-food-fuel choices.

The Wageningen approach

These complex challenges require an integrated approach. To ensure sufficient, safe and healthy food and water, production alone is not sufficient. We also require adequate organisation of the availability of that

food for consumers and a production process that uses available natural resources (soil, water, atmosphere, natural habitats and animals) sustainably. Furthermore, insight is needed into the social environment and the behaviour of people that act in these processes.

The Wageningen approach is geared towards solving these challenges. When working on solutions, we combine knowledge from the natural and social sciences, ranging from biology to sociology and from technology to the spatial and earth sciences. We have access to both fundamental and applied knowledge that we can use as required. The demand for knowledge about these complex problems is constantly changing, giving our knowledge a dynamic character. We respond to this demand through various combinations of expertise. Our approach encompasses a range of scales, from local to global. We study local and regional themes, working on national issues such as the Dutch policy for food and nature, while also working at the European and global levels on issues that concern specific regions or the world as a whole. The scale on which we operate also varies in another sense: our knowledge ranges from the smallest scale (DNA, genomics) to global ecosystems, and from individual to global socio-economic systems. A distinguishing characteristic of our approach is our ability to view problems at various scales and achieving synergy between these levels.

Strategic cooperation

We can attain our national and international ambitions exclusively through powerful partnerships. We seek this collaboration at various levels and with various types of partners: not only universities and research institutes but also government agencies and public bodies, businesses and NGOs. In the years to come we will strengthen these connections with other parties.

In the cities where we are located we maintain good relations with local government and businesses. We have opened Wageningen Campus for other knowledge institutes, knowledge intensive industries and R&D divisions of international companies. We facilitate starters and spin-offs and offer our partners infra-

structure such as the business incubator and a business centre with a flexible pilot plant. We cooperate with intermediary partners who support us in valorising our knowledge, such as the Ministry of Economic Affairs, Oost NV and the Netherlands Chamber of Commerce.

At the regional level, we collaborate with universities and research institutes and industry in our domain's economically innovative regions and *hotspots*, such as Food Valley, Dairy Campus and the Greenports. At the national level, our most important partners, like us, are also specialised research institutes: the other universities with which we collaborate on specific themes and the five other technology-oriented research institutes (TO2 institutes). Our collaboration with the TO2 institutes focuses on establishing an open innovation network (see the TO2 Federation's strategic framework).

At the European and global levels, we choose partners of a comparable quality and position, usually in countries where the "golden triangle" is also present. In the United States, for example, we are strengthening our cooperation with partners such as UC Davis and Cornell, in Europe with INRA (France) and in Asia with CAU (China) and NTU (Singapore). Concerning educational exchange, we maintain an even broader network of institutions with which we cooperate and which encompasses our entire domain.

In addition, we also seek out cooperative partnerships in emerging countries. There we choose healthy, rapidly developing partners we can support locally with our expertise in research, education and capacity building. For example, the solid international reputation of our PhD programme is leading to an increasing demand for our expertise in capacity-building programmes for higher academics



(PhD candidates and postdocs). In response, we are enhancing our current programmes and expanding our courses and modules in this area.

Ambitions

We strive to further strengthen our current position in our domain. Our objectives and strategies for 2018 are expressed in the following four ambitions:

1 We are, and will remain, an excellent research institution that provides high-quality scientific knowledge and expertise to our stakeholders.

With our stakeholders we join forces to work on the availability of sufficient, safe and healthy food for everyone, maintaining and enhancing a vital living environment and transitioning to a circular economy. To achieve this ambition, we focus on large, multidisciplinary projects, on more synergy between fundamental and applied research, and on attracting and training talented researchers.

2 Our education will continue to be world-class.

We will continue to train people to make an essential contribution to the challenges in our domain. They will contribute through their up-to-date and excellent scientific qualifications, multidisciplinary approach and international and multicultural orientation. We will continue to renew our educational approach, cherish the relationship between research and education and further develop online education in order to reach new target groups, including professionals.

3 We will strengthen the impact in our domain by enhancing the economic and societal value of our knowledge.

The focus will be on strengthening innovation and co-creation with partners, the dialogue with society and more commercial activities and spinoffs on-campus.

4 We will improve ties to local, regional, national, European and global partners.

We will make explicit choices for strategically important and prominent partners (education and research institutions, NGOs, government agencies

and public bodies, businesses) throughout our domain. We will further enhance the connection between the various scales (from city to world), thus promoting synergy.

We can achieve these ambitions only if Wageningen University & Research functions well as an organisation both economically and socially. We have therefore supplemented the above ambitions with the following objectives, which focus more on the organisation:

- 5 We will strengthen the synergy between the **One Wageningen** components, so that we are perceived internally and externally as a single, coherent organisation.
- 6 We will continue to offer our employees a **challenging, inspiring and international work environment**. We will attract talented staff and train talented individuals to reach their full potential.
- 7 **Corporate social responsibility** will be further integrated into our operations.
- 8 Our organisation will continue to be **efficient and flexible**. We will continue to achieve and maintain **healthy financial results** and a **robust financial balance**.

These ambitions are worked out in greater detail in the subsequent chapters. ■

Research

The world needs our knowledge to tackle the serious challenges we face. Knowledge about food, water, energy, climate, health and behaviour. Knowledge for people and nature, for our surroundings and our planet. We perform excellent research in the areas of society and well-being, natural resources and living environment and food, feed and biobased production. But this is not all we do. Society is challenging us to come up with solutions. Solutions that go further than those provided by individual fields of knowledge, solutions that emerge from the overlap between them. New insights, new solutions: the knowledge of tomorrow.

Themes in our research, from fundamental to applied

A unique aspect of Wageningen University & Research is that we combine a university and several research institutes into a single organisation. The university and research institutes focus on the same research domain, but there are differences in the research questions, research approach and the period of time in which the results become visible to the outside world. Our combination of fundamental and applied research allows us to take a very broad approach to the knowledge questions in our research domain.

The importance of fundamental research

In the individual disciplines in our domain we conduct curiosity-driven, high-quality fundamental research. This research emerges from a passion for conducting a deep analysis of complex questions and improving our

understanding of the world around us. This approach calls for enthusiasm, curiosity and perseverance. We cherish this type of research because it creates the foundation for the development of knowledge and expertise. Based on a strong foundation of knowledge we can respond to questions in society, being confronted with them at unexpected times. For example, during the outbreak of a new infectious disease, fundamental knowledge about and experience with comparable pathogens, their possible carriers or the reservoir in nature is crucial. If this expertise would need to be developed after such a problem occurs, this would be too late. A solid foundation of fundamental research ensures robustness and flexibility in the long term.

The importance of applied research

In applied research, knowledge is developed and made available for application in the short to medium term.

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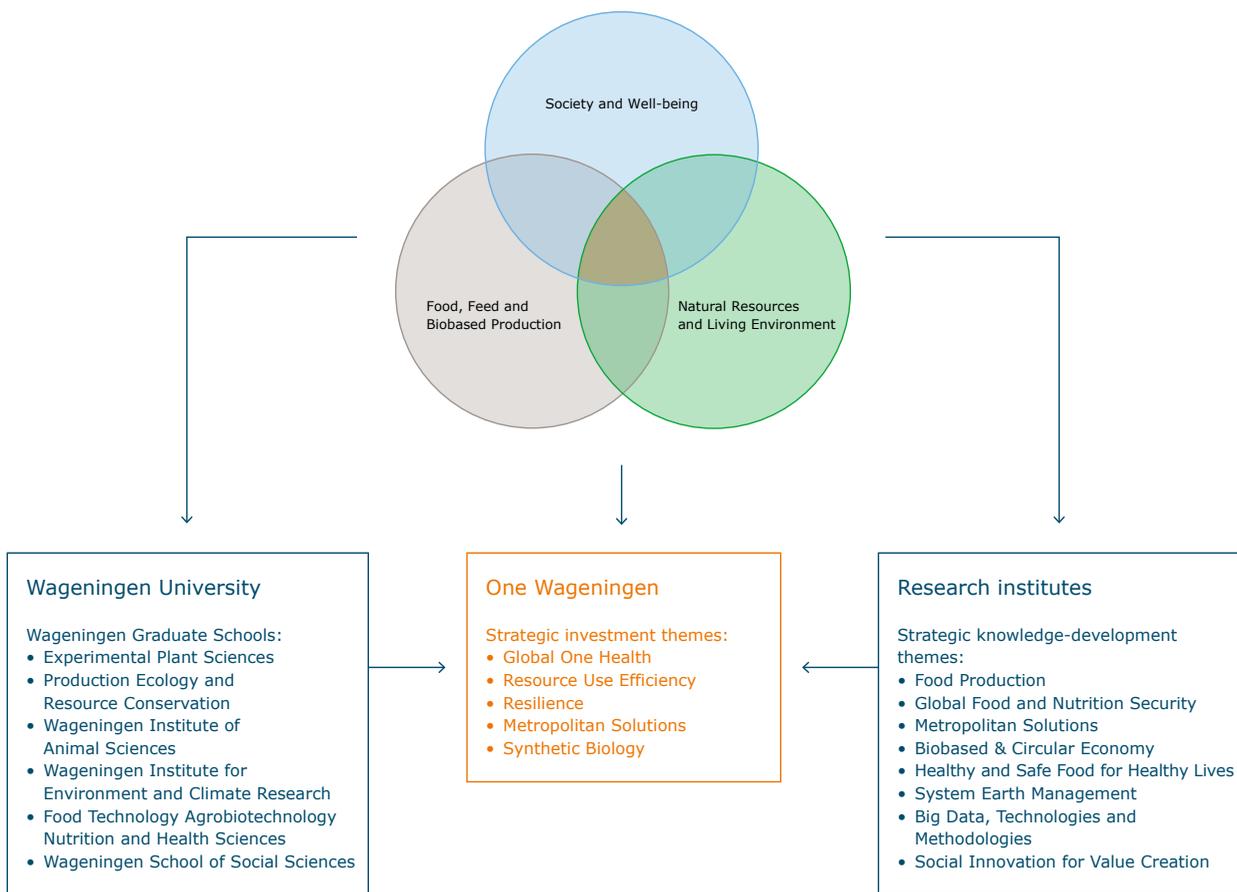


Figure 4.1 The relationship between the themes of the universities and the research institutes, and the joint investment themes

Our researchers who perform applied research are driven by the desire to impact society and business and to use their expertise to help solve societal problems. They frequently work together with businesses, partner institutions and civic organisations, often leading to innovations and process improvements while also improving the competitive position of the commissioning customer. The researchers are required to take a professional and market-oriented approach. The customers expect that their investment in research will provide tangible and usable results, and they choose the best knowledge supplier on the market. For the government, we develop knowledge that can be used to make effective policy. This also includes

tasks in enforcement and calamity control, such as conducting focused inspections and taking measures related to the previously named example of an infectious disease outbreak.

Our research themes

The major societal challenges we face in the short and long term require a strong foundation and an integrated approach that brings together knowledge from various disciplines. All our research takes place in the broad domain of food and living environment, with the core areas *Society and well-being*, *Food, feed and biobased production* and *Natural resources and living environment*.

Research at the university takes place through various disciplines that have been combined into six graduate schools. The names of the graduate schools reflect the most important research themes of the university:

- *Experimental Plant Sciences,*
- *Production Ecology and Resource Conservation,*
- *Wageningen Institute of Animal Sciences,*
- *Wageningen Institute for Environment and Climate Research,*
- *Food Technology Agrobiotechnology Nutrition and Health Sciences,*
- *Wageningen School of Social Sciences.*

The nine research institutes have always focused on different areas of expertise. More than at the university, the research themes are determined by the market or by specific customers. This market-driven nature of the research, along with the operational model that is based largely on financing by market parties, gives the research themes of the institutes their own dynamics.

Much of the research at our research institutes is commissioned by the Dutch and European governments. For example, we perform Statutory Research Tasks in infectious animal diseases, food safety, economic information, fishery management, genetic sources and natural habitats. Our research, both policy-supporting research and other scientific research, establishes the basis for government policy and legislation. This serves, for instance, to protect public health (both human and veterinary), promote export and conserve vital natural habitats.

For the research institutes, we define eight research themes that encompass the entire research portfolio, and link the institutes thematically with each other. This increases the synergy of our knowledge development.

The unifying themes of the research institutes are:

- 1 *Sustainable Food & Non-food Production,*
- 2 *Global Food and Nutrition Security,*
- 3 *Metropolitan Solutions,*
- 4 *Biobased & Circular Economy,*
- 5 *Healthy and Safe Food for Healthy Lives,*

- 6 *System Earth Management,*
- 7 *Big Data Technologies and Methodologies,*
- 8 *Social Innovation for Value Creation.*

We also opt for a stronger substantive connection between the university and research institutes by jointly choosing five new strategic investment themes. These themes are found at the interface between our core areas. In the coming period we will make additional organisation-wide investments in the following themes: A Global One Health, Resource Use Efficiency, Resilience, Metropolitan Solutions and Synthetic Biology. These themes are discussed in more detail in the following section.

Our investment themes

The five investment themes are strategic topics with which we can emphasise specific aspects of our expertise development. These themes are the successors to the strategic themes from our previous plan. They have been chosen in areas where various scientific disciplines in our domain intersect. These areas encompass urgent and relevant challenges that could benefit greatly from our unique combinations of expertise. By combining various scientific disciplines, new insights are created that facilitate considerable progress.

A Global One Health

Controlling the risks of disease outbreaks and reducing endemic infectious diseases are crucial to food security, public health, climate change and biodiversity. We use the phrase 'A Global One Health', as it reflects the interconnectedness and global nature of health care for humans, animals, plants and the environment. Many health risks can be controlled through effective interventions consisting of an adequate and varied food supply, hygiene, medicines, vaccines, vector control and crop protection.

A sustainable and shared approach requires an integrated analysis of infectious diseases, with

contributions from various knowledge domains. We perform research into infectious diseases, vectors, ecology, epidemiology, healthy agriculture (animal health and plant health) healthy nutrition and intestinal flora, food security and safety, and social health issues. Through a system approach, we provide an essential contribution to improving the health of people, animals and plants.

Resource Use Efficiency

A more intensive use of natural resources places increasing pressure on biological systems and on production and consumption systems in agriculture. Due to increasing global urbanisation, the distribution of the flow of energy, materials and waste is shifting on a large scale, and the quality of ecosystems (for example soil and water) is under pressure. The flow of nutrients, residue and waste is becoming concentrated in prosperous, densely populated urban areas, while elsewhere the soil is becoming depleted.

We are investing in the transition to a more sustainable and efficient system of production and consumption. We are developing new knowledge and technology to

deal more efficiently with the available raw materials. We are changing primary production streams through new combinations of various sectors, product groups and raw materials. We are working on the intelligent closure of previously separate cycles of energy, materials and nutrients through the optimal use of plant and animal sources. In addition, we are contributing to a high-efficiency revolution in the use of raw biological materials through the efficient conversion and distribution of streams, raw materials and products, as well as the prevention of waste and disposal of nutrients. This transition is also accompanied by new business opportunities and risks, which were previously unknown. For the effective support of this transition, governance is crucial; new networks must be formed between the most important actors in production and consumption, innovations in institutions must be required and new practices must be developed. Socio-economic analyses show how this transition can be shaped.

Resilience

Resilience is an important property not only of natural ecosystems, agro-ecosystems, and economic and



social systems, but also of biological systems such as humans, animals, plants and microbes. The resilience of a system determines its response and adaptation to sudden, non-linear changes such as rapid technological progress, climate change and socio-economic changes. The reactions in the systems are complex and are determined by interaction with other systems and reactions between different scales.

We are already working on resilience in various scientific areas. Many of the underlying principles, such as mathematical and experimental approaches, are universally applicable. As a result, the application potential is great. This is illustrated by the current work on the resilience of livestock, tropical rain forests, food supply chains and climate-resistant agriculture. To deepen and expand the research on resilience, we are working on new interdisciplinary applications for resilience.

Metropolitan Solutions

By 2050, 70% of the world's population will live in cities. As a result, cities will to an increasing degree face issues concerning the sustainability and quality of

life. This concerns aspects such as food security, mobility and logistics, the availability of water, dealing with raw materials and waste, health and well-being. The metropolitan city is simultaneously an incubator for creative solutions, a precursor of social and technological sustainability innovations, an important player on the world stage and a specific social and ecological system. In this way, the metropolitan city also serves as a 'living lab' to design, test and disseminate solutions to these problems.

We are committed to metropolitan solutions in order to arrive at *smart cities*: cities and metropolitan regions that – in close relationship with the surrounding rural areas – are liveable, healthy, resilient and cyclical. For instance, we understand that green areas in the city play a key role in business climate, safety (water storage), liveability and health. The Amsterdam Institute for Advanced Metropolitan Solutions (AMS) and the Delta Alliance are two of the first initiatives in this field. We would like to expand these with new international initiatives and networks.



Synthetic Biology

Acquired knowledge on genetic material as a building block for life has increased drastically. We can use this knowledge to design new biological systems. This offers a world of possibility for improving the quality of life. However, the application of synthetic biology is still in its infancy. At present, work is taking place only with biomolecules and single-cell organisms, such as bacteria and yeasts.

Over the long term, our research will contribute to evocative aspects such as production platforms for energy, new biologically inspired materials, refined diagnostics with the aid of biosensors and the production of pharmaceuticals. This also elicits questions about what 'life' is and how science and society can mutually ensure responsible innovation – for example when it comes to societal acceptance, controlling risks and protecting intellectual property. The extra investments in synthetic biology provide opportunities for successful international competition

in this area, in which natural scientists and social scientists work closely together.

The organisation of our research

We are accepting the responsibility for strategic expertise development to help solve social issues and benefit economic development in our domain. We are investing in our knowledge position to benefit our various markets: Top Sectors, the EU, business, and national and international government agencies and public bodies. In this way we are preparing for questions that must be answered in 3 to 5 years.

Partnerships

Together with national and international partners from science, government, society and business, we are tackling global challenges. Our partners rely on our specific expertise, multidisciplinary, flexibility, independence and international experience. We,



in turn, seek out partners based on their specific expertise, quality, networks, market access and experience.

In the Netherlands we provide a major contribution to the top sectors AgriFood, Horticulture & Propagation Materials and Water. However, we also play an important role in other top sectors, such as High Tech Systems & Materials, Chemistry, Energy (including Biobased Economy). Together with the business community we are establishing new public-private partnerships within the top sectors.

Through the research institutes, we cooperate intensively with other institutes for applied research within the TO2 Federation, according to the open innovation model. TNO and Deltares are especially important partners for us in the top sectors and elsewhere. In the near future, TNO Voeding & Biobased will move to the campus and will intensify their cooperation with us in Food, Nutrition and Biobased Research in the context of the Grand Design for Food and Biobased.

At the university level, we will strengthen a number of strategic alliances with other Dutch universities.

International

We are enhancing the coherence in our international approach. For our frameworks of cooperation and the networks in which we participate, we are focusing on countries in which partners in the golden triangle have jointly made strategic choices. Besides scaling up current activities, we are also actively exploring new markets and project opportunities, where the most important criterion is the complementarity and excellence of our partners.

Quality of research

Our university research receives good assessments in peer reviews, and we occupy a high position in the rankings. We hold a top position in Life Sciences and Agricultural Sciences on the Shanghai Ranking and want to maintain this position. In the Netherlands, we acquire relatively more revenue from the EU than other universities and research institutes.

To improve the quality of research, we uphold a good PhD and postdoc policy. In addition, we support our best scientific talent through Tenure Track, in which young talent, on the basis of their performance can progress relatively quickly to a Personal Professorship. We support candidates who want to submit a project proposal to the NWO (VI programmes) or the European Research Council (ERC), and we reward Spinoza laureates and Academy Professors with a bonus. Wageningen Young Academy supports a scientific climate in which ambition and creativity are encouraged. In the near future, we will investigate how we can further optimise the climate for the best scientific talent.

In applied research, not only quality but also the added value for the client is important. Results lead to innovation, new policy or legislation. Publication in academic journals is an indication of scientific quality, and publication in reports and professional journals a measure of applicability. To further improve the quality, we implement ISO standards, maintain direct contact with the customer regarding the implementation of the research and will continue to participate in external assessments (visitations) of the scientific quality of the research. We measure customer satisfaction in a simple fashion, and are developing a system to make the impact of the research even more visible.

Regarding the publication of the results of scientific research we have opted for the transition to Open Access and transparency in the use of research data. Until now, we have generally followed the so-called Green Route, in which the articles we have published in a journal are also included in a free access archive. In the years to come, our preferred method of publication will be via the so-called Golden Route: peer-reviewed articles in open access journals, where the author pays for publication instead of the reader paying for a subscription. The financing of publications must be adapted to this new system. We also promote a culture in which it is normal to publish articles and the corresponding research data simultaneously. ■

Education

Wageningen University & Research is attractive for Dutch and international students. During the past decade, they have consistently rated our university as the best in the country. We are maintaining this quality and are working on an educational approach with which we can handle the rapid growth in enrolment. We are looking for students who want to get the most out of their studies, and we want to retain the coherence between education and research.

To consolidate our international position as a top university, we are offering more online education, both to our on-campus students and new target groups around the world. Moreover, we are focusing emphatically on lifelong learning. We are forming new alliances so that universities abroad can include Wageningen expertise in their programmes. Equipped with excellent scientific qualifications and a strong sense of responsibility, our graduates take a central role in international society. These are the Wageningen alumni who will contribute to the healthy food and living environment of 9 billion world citizens in 2050.

Coherence between research and education

All Wageningen education focuses on the domain of food and living environment. Figure 5.1 shows how our Bachelor's and Master's degree programmes are positioned across the three core areas of this domain. These programmes are grounded in one or more scientific disciplines and the research that we conduct in these disciplines. Our students not only receive excellent scientific qualifications, but they are also

prepared to apply multidisciplinary approaches to relevant themes and to fulfil their roles as knowledge workers and citizens. Our education keeps close track of the latest scientific developments because virtually all members of staff combine research with education. They innovate very directly in their own disciplines, and through the Educational Institute we renew components of study programmes and specialisations during the annual education change cycle. We are now considering taking the time and space – once every six years – to implement even more far-reaching changes, for example during the accreditation cycle. When interesting developments take place in our domain, we develop new degree programmes, sometimes with one or more partners. For example, we are currently developing a joint Master's programme in urban issues (together with Delft University of Technology in the Advanced Metropolitan Solutions project), and we will soon apply for accreditation for a research Master's programme in the Social Sciences. In collaboration with other prestigious institutes we are investigating the possibilities of offering an MBA for Food Chains. We are also consulting with other universities about giving our students the option of acquiring an advanced teaching qualification.



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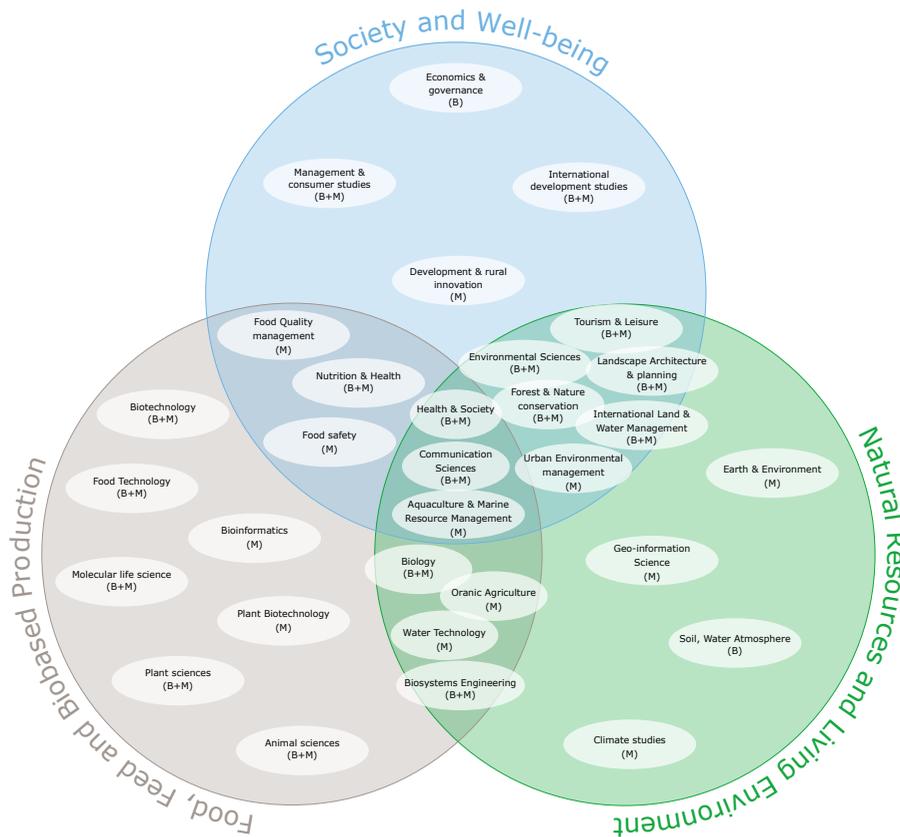


Figure 5.1 Bachelor's and Master's degree programmes in our domain

PhD programme

The European University Association recently gave the Wageningen PhD programme a very positive evaluation regarding its current structure and quality. And when the final assessment arrives, we will continue to improve the programme. We are committed to achieving even higher quality and more efficiency in the supervision of our PhD students. During the PhD training we focus on international cooperation by developing in-depth courses with our international partners and expanding the number of joint doctoral degree programmes. In the career development programme, we pay more attention to working in environments other than science, such as industry,

education and policy. We also increase the focus on integrating science in society, not only in the design and implementation of our research, but also in how we communicate our findings to the world.

Relationship between education and research

We believe that research and education are an inseparable entity. In the roles of the academic staff, both tasks must be equivalent and balanced. Due to the rapid growth in student numbers, however, research funding (government funding and contract research) has not kept pace with the education budget. The balance then shifts to education, and the desired equilibrium is at risk. We are investigating whether

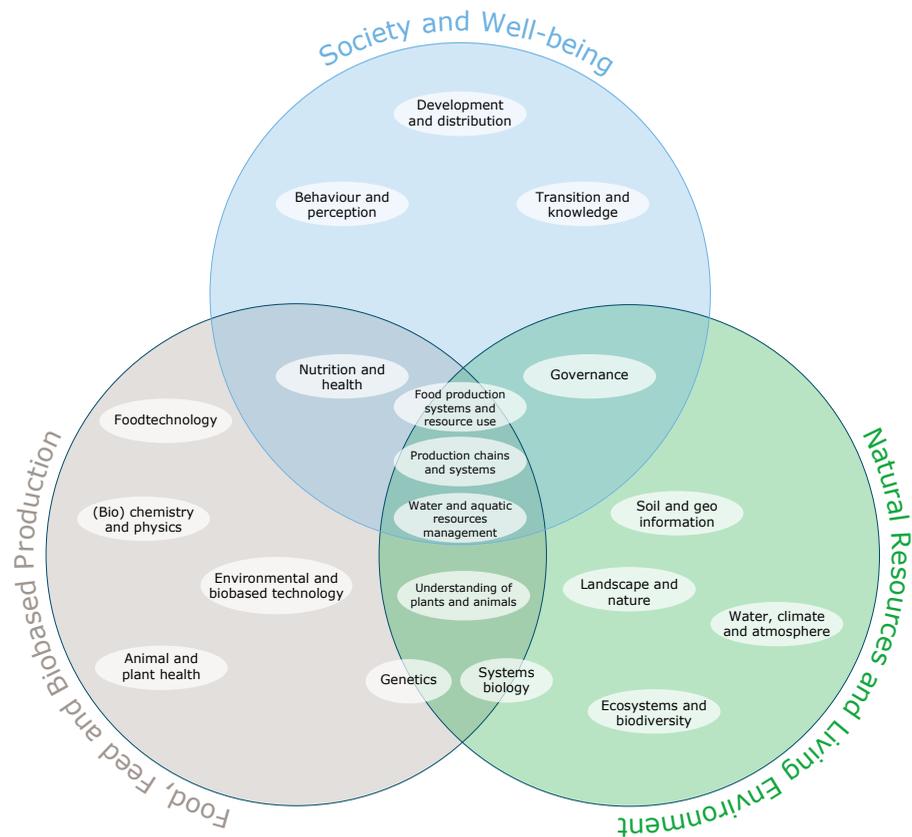


Figure 5.2 Positioning of combinations of chair groups in the domain and core areas

we can safeguard this equilibrium, for example by involving our research institutes more directly in education. All lecturers must have the required teaching qualifications. Another solution might be to appoint full-time lecturers on a limited scale. However, this contradicts the unity of education and research, so this would only be an option at the beginning of the Bachelor's phase.

Chair plan: disciplinary assurance of education and research

The chair plan is the backbone of the university. It defines the scientific fields that are relevant for education and research, and determines how they

contribute to our mission and ambition. We now have 93 chair groups, distributed across our domain. Figure 5.2 shows the 93 chair groups, clustered according to their primary focus, within our domain. The chair plan indicates that we will explore which fields require strengthening and which fields can be downsized. To respond to developments in our environment, a certain level of dynamics and renewal must be possible in the groups. But dynamics and renewal also require stability and solid anchoring in the organisation. Consequently, the chair plan has proposed that the necessary robustness and resilience are promoted.

Growth and quality: our new approach to education

Wageningen University & Research is growing rapidly. We are pleased with this growth, but it also requires a shift in our educational approach. Due to financial agreements with the Ministry of Economic Affairs, the rapid growth in enrolment has resulted in less educational funding per student. Combined with the possibilities provided by digitalisation and the attention for new competences (*21st-century skills*), this has led to further reflection on our didactical concept and to further innovation. Based on the current high quality of our education, we are continuing to innovate our educational concept. Our main goal is to provide high-quality, effective and efficient education to larger numbers of students, with an emphasis on maintaining our small-scale approach. Our renewed approach to education is based on the following assumptions:

- 1 *Each student is an active participant in the education process.*
- 2 *Feedback is an essential component of learning.*
- 3 *We cherish the diversity in background, knowledge and ambition of our students, and we offer education in a flexible fashion.*
- 4 *Lecturers learn from each other as members of 'learning communities'.*

For students and lecturers alike, these assumptions cause shifts in education. We want our students to shift their motivation from 'How do I pass this course?' to 'How do I get the most out of this course?' Lecturers will continue to shift their approach from *force to learn* to *enable to learn*. In 2015 we will work out the details of these assumptions by discussing them with an inclusive group of lecturers and students, and determine which innovations and measures are required. We are investigating what is needed to coach students to have an active attitude, to improve feedback and examinations, and to cope effectively with diversity. In our new educational concept the idea of *flipped learning*³ will play an important role.

³ *Flipped learning* is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.

We expect all lecturers to commit to high-quality education and educational renewal and to acquire a basic teaching qualification as a minimum. We are encouraging them to learn from each other by establishing *learning communities*. Using technology in education is a complex issue and leads to new roles or tasks for lecturers. We support lecturers in these new rules and in the proper use of technology in education. To promote educational innovation, every year we offer an innovation budget with which lecturers can make far-reaching changes in their teaching methods.

We use many instruments to assure the quality of education, including evaluations by students, peer reviews and the activities of the Examining Boards. We are investigating how we can improve the system of course evaluations by students, in any case by focusing on a higher response from students. Courses will continue to be peer reviewed once every six years.

Now that we have gained some experience with the honours programme in the Bachelor's phase, we are convinced that a proportion of our excellent students appreciate a substantial extra challenge, in addition to their regular curriculum, and we believe that they can face this challenge successfully. We will continue to invest in the BSc Honours Programme, and we will also determine whether we can make this programme available to more students. Moreover, we will investigate the feasibility and desirability of an honours programme in the MSc phase. We will also challenge students to develop their talents in different ways by offering in-depth modules with extra credits, prizes or summer schools. We will use our experience with the honours programme in our discussions about the quality and structure of the regular programmes.

The development in student numbers is difficult to predict. In the Netherlands, demographic data indicate a decline after 2020. World-wide, however, the demand for higher education is still increasing sharply, along with the demand for graduates in our domain. Therefore, we have decided to not artificially restrict the growth in university enrolment, nor will we strongly promote this growth. We will limit the use of a quota system (in the Bachelor's phase) to cases involving

severe problems with staffing or facilities. However, we will offer direction in our recruitment for the Master's programmes and PhD positions. We will demonstrate that we expect our students to take an active role and to commit themselves to their education. Once these talented students have enrolled, we will commit to keeping them on track by means of a well-designed learning process.

The growth in enrolment also affects the social environment of on-campus students. The groups are becoming larger, so students can more easily feel 'lost in the crowd'. This is why we will continue to support introduction days, study associations, student associations and the supervision of students by, for instance, study advisers and student deans. Another possibility is for students to support each other (*buddy system*). We are focussing emphatically on the further development of an environment in which all nationalities and cultures can thrive, and social coherence is encouraged.

Digitalisation and various target groups: a single system of education

Our current education system takes various forms: the university now provides the initial Bachelor's and Master's degree programmes and PhD training, while the Centre for Development Innovation (CDI) and Wageningen Academy provide education in the form of short courses or short programmes. The investments in digitalisation and increasing attention for *life-long learning* require an efficient and coordinated educational assortment for larger numbers of students and an increasing diversity of target groups. In this process, we make intensive use of new technology. The emphasis in our education is still primarily on the initial Bachelor's and Master's degree programmes, but we are increasingly disseminating our expertise at different levels and to different target groups – within a single, coherent education system.



The core of the education system is Wageningen Campus: this is where the knowledge that we have acquired and continuously supplement through fundamental and applied research is translated into educational content. Students who want to follow a full-time Bachelor's or Master's degree programme do so at the campus. On the campus, face-to-face interaction is possible, not only with fellow students and academic staff but also with businesses located on or near the campus. We believe that this the most suitable form of education, particularly when it comes

to Bachelor's education for young adults. In this education, we are increasingly implementing new technologies to support active learning by students. As our students progress in their studies, they come closer and closer to the environment of the chair group: work on the Master's thesis is carried out in the vicinity of the chair group. As a rule, PhD students also come to the campus, where they are part of the chair groups: they conduct research and teach, or provide educational support.



A smaller group of international PhD students conduct part of their research in their country of origin and part of their research here ('sandwich' PhD students), and an even smaller group of PhD students work elsewhere and earn their PhD here (external PhD students).

The first 'shell' of extramural education consists of full-time or part-time students who want to take a full-time Bachelor's or Master's degree programme, but participate in most of the education via distance learning and online courses. They occasionally come to the campus for practicals, thesis supervision and incidental contact with their co-students. We supplement educational components developed on the campus with intensive online types of group work, examination and feedback. The quality of these online programmes must meet the same accreditation requirements as the on-campus programmes. We also believe that students who want to earn a degree from Wageningen University & Research must in any case have spent some time in Wageningen.

In the second shell of extramural education, we disseminate educational components developed for the campus and online even more broadly. For example, our partner institutes in developing countries and elsewhere can use our educational components and supplement them with local guidance to students, practicals and exams. We call this approach *Wageningen Inside*. But we also offer these components in massive open online courses (MOOCs) via the edX platform (together with universities such as Harvard and MIT) and in our course selection. Every year, we provide several new MOOCs, while focusing emphatically on education for alumni and other professionals in the context of life-long learning.

Coherence in the education system

The core and the shells around it strongly influence each other, and make use of the same expertise, the same educational components (or parts thereof), and the same staff and facilities. Students move back and forth between the core and the various shells. They might begin as full-time students on the campus, work and study part-time for some time, then after graduation return to take a new specialisation as part

of their career. Conversely, they might begin with several MOOCs and then become enthusiastic about taking a full-time programme on campus.

International education

We are an international university and in our *international classroom* students are trained to be able to work almost anywhere in the world. The complexity of the issues in our domain requires students to also have good intercultural skills. We encourage our students to participate in internships and education abroad. We are expanding our relationships with international partners and looking for new partners to promote and facilitate the international mobility of students.

Due to their diversity in background, international students make an important contribution to the quality of education. Moreover, they are important for the university (and for the Dutch business community) as our future ambassadors and contacts in business. The growth in student numbers consists primarily of Dutch students. To maintain a balanced composition of the *international classroom*, we set targets for the number of international students. We recruit international students in a focused fashion and select strategic partners for cooperation in Europe and elsewhere. We are also currently investigating the possibilities for and the consequences of a strengthening of the international classroom and increased enrolment of international students in the Bachelor's phase, especially by offering more Bachelor's degree programmes in English.

For the development of *blended* and online education, the joint provision of degree programmes or the exchange or enrolment of international students, we cooperate with excellent complementary partners, both inside and outside Europe. For example, together with Nanyang Technological University in Singapore we offer a degree programme in Food Technology, in which talented students can transfer to a Wageningen Master's or PhD programme. We are continuing to develop our policy on double and joint degrees. ■

Value creation

Wageningen University & Research is unique. We combine fundamental and applied science, education and research. Moreover, the Netherlands has organised the knowledge in our domain into a golden triangle of government, business and expertise centres, linked to a shell of increasingly active and expert civic organisations and active citizens. This 'Dutch Approach' is perceived as an outstanding basis for innovation; herein lies the 'power of the Netherlands'. We amplify this power by committing even more deliberately to social and economic value creation, in our networks and with our stakeholders: Wageningen University & Research for impact.

Societal and economic value creation, together with stakeholders

Society benefits in various ways from the investments in our research and education. For society, we are an important focal point of knowledge and expertise, and we are part of a national and international scientific community for food and nature ('science for science'). We develop and transfer knowledge as a contribution to the challenges described in Chapter 2 in the domain of food and living environment. We train young people and employees to work in that domain ('science for society' and 'science for economy'). By working together with other universities, with the 'green expertise column' and with other education institutions, we ensure that our knowledge also has a place in education elsewhere ('science for education').

Solving the complex issues in our domain requires a continuous dialogue and good cooperation between the various stakeholders in the golden triangle: government, business and expertise centres, supplemented with civic organisations and individual citizens. Only by working together in the form of knowledge networks can we transform our knowledge and expertise with sufficient efficacy to create social and economic value.

Based on our ambition to impact society and transform our knowledge into value, we consider increased value creation to be a logical task for our organisation, one that links up seamlessly with our other core tasks: education and research. We increase value creation principally by aiming for a good position in networks and boosting internal professionalism.



6

Our value creation processes

With our current education and research we already create direct value for society. But the desire to have even more impact and create even more value leads to shifts in emphasis within existing activities and sometimes results in entirely new activities.

In this context, we distinguish five value creation processes:

- 1 *We form innovative partnerships with the business community.*
- 2 *In dialogue with society, we work on societal challenges.*
- 3 *We develop knowledge to support the government in the formulation and enforcement of legislation*
- 4 *We share our knowledge infrastructure with businesses and other organisations.*
- 5 *We train experts to play a role in the development and application of our knowledge.*

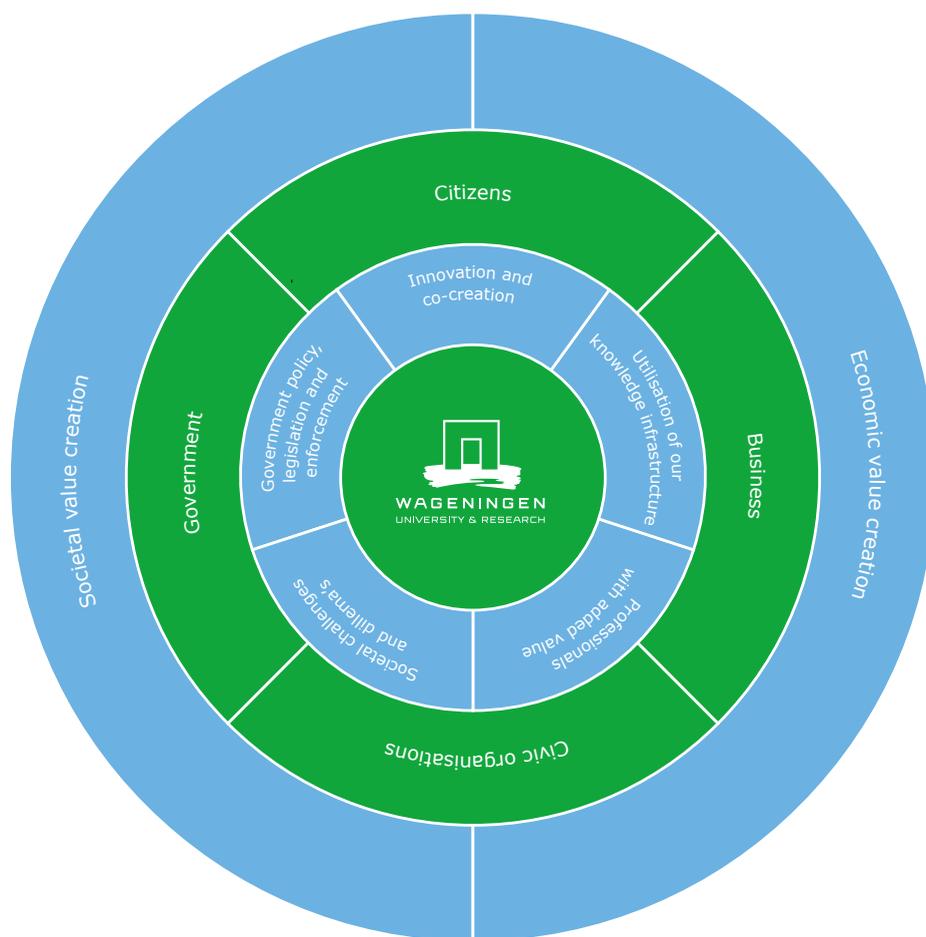


Figure 6.1 the various forms of value creation of Wageningen University & Research, with the corresponding stakeholders

1 Innovation and co-creation

The results of our research find their way into all kinds of innovative products, services and processes. In many cases, this helps strengthen an innovative economy. Traditionally, we are closely connected with the primary sector and their organisations. With the disappearance of the *Productschappen*, creativity is required to reconnect with SMEs in the primary sector. It is our challenge in cooperation with the sector to maintain both the relationship and the value creation.

Our themes link directly to several of the top sectors, as defined in government policy. In these top sectors, the industry defines the challenges they want researched and want to invest in. In our research for the top sectors, we can cooperate with Dutch industry to find innovative solutions for relevant issues in the business community. We support businesses in their search for new products, new processes and new revenue models. We focus not only on Dutch industry, but also on international industry and on fundamental and applied research. Wageningen University & Research is eager to contribute to the innovation agendas of the top sectors Agri&Food, Horticulture & Propagation Materials, Water, and to the trans-sector Biobased theme. Our contribution to the agendas of the top sectors Life Sciences and Health, Logistics and High Tech (IT) will be more modest.

To promote value creation, we ensure better accessibility for businesses and civic organisations to the knowledge and know-how of Wageningen University & Research staff. In particular, we support SMEs with concrete activities. By means of low-threshold portals such as the Green Helpdesk, the Education Desk and the Sciences Shop, we make our knowledge broadly available. We organise events focusing on personal encounters and knowledge transfer, such as scientific conferences, demo days and seminars for businesses and the public sector. We hold a strong position in various networks at various scales, from the regional Food Valley or the Dairy Campus to the global CGIAR. During the coming period we will focus specifically on our participation in important networks.

2 Societal challenges and dialogue

The role and position of science in society has changed. Whereas science was previously mandated by the government to identify problems and formulate solutions, the initiative is now taken much more frequently by active citizens and civic organisations. The energetic society is characterised by initiative, creativity and learning capacity of citizens and groups. This places other demands on government and expertise centres. The energetic society requires room for action and initiative. During this process, science is not an authority that dictates to society what must happen, but a supplier of knowledge that – in dialogue with citizens, civic organisations and government agencies and public bodies – gives direction to societal developments.

As a centre of expertise, we are making a growing contribution to the public debate. For a good debate, the contribution from independent scientific knowledge and objective fact is essential. Making knowledge available by means of scientific journals or conferences is not enough. Our role as knowledge supplier to society is more visible through the sharing of our knowledge, placing important and sometimes controversial topics such as genetic modification on the agenda, and by putting scientific and societal developments in perspective. We can build a bridge between businesses and consumers by providing objective information, based on scientific research.

With our contributions, we ensure that society can make well-informed choices regarding agriculture and nature development. By means of the Wageningen Dialogues, we are entering into a permanent discussion with society. This is a discussion of topics that affect society and for which Wageningen possesses the required knowledge. We choose forms of dialogue that make it possible to listen to what is happening and to join the conversation, which lets us connect to society and arrive at ideas together. We use online forms of dialogue as well as physical meetings, and also choose creative platforms.

3 Government policy and legislation

Our scientific research forms the basis for government policy and legislation in our domain. Examples include the protection of public health, human and veterinary, export promotion and the conservation of vital natural habitats. In our statutory research tasks and policy support research, our contribution becomes tangible. Our integrity and independence are emphatically a precondition for implementing these tasks.

4 Utilising the knowledge infrastructure

For our research, we have access to high-level knowledge, equipment and research facilities. We ensure that this infrastructure is more broadly utilised by actively promoting the sharing of facilities. SMEs benefit from this approach because various forms of research, which are normally much too expensive, are now within reach. Additionally, R&D departments of

businesses and other knowledge intensive organisations also benefit: we offer them an inspiring environment and the use of our research facilities.

Together with partners, and also in the context of campus development, we invest in the necessary infrastructure, such as the business incubator and business centre with flexible pilot plant. We continue to promote the sharing of facilities in CAT-AgroFood. We work on the promotion of entrepreneurship for students and young graduates. Via a partnership with StartLife we support start-up businesses that are based on scientific discoveries. These spin-offs benefit not only from their access to our research facilities, but also from the availability of the latest knowledge, the continuation of contact with the research community and the transfer of instinctive knowledge; this increases the likelihood of success for new businesses.



5 Professionals with added value

In Wageningen, but also at other locations in collaboration with national and international partners, we train professionals who have a specific added value. These experts possess high level and up-to-date knowledge and skills. They develop and apply new knowledge in our domain. Within the Netherlands we support other forms of 'green education' in secondary vocational education (MBO) and higher professional education (HBO), by improving the transfer of our knowledge and the corresponding educational materials. We work together in centres of excellence with HBO institutions, also outside the green education sector. The cooperation within the top sectors is found on the cutting edge of this cooperation with HBO institutions and applied research.

We ensure that the latest knowledge is always available for our alumni and other experts in the field. Our Centre for Development Innovation and Wageningen Academy offer a broad training programme for professionals. In developing countries, our contribution to the training of professionals is a sustainable way to help them build their economies.

The culture of value creation

We invest in the anchoring of value creation in the culture of our organisation. We make managers and researchers more aware of the possibilities for active contribution to tackling the scientific and social challenges of our time. Especially in applied research, we encourage our researchers to take a professional and entrepreneurial approach. ■



An open and cooperative organisation

We have the ambition to help solve important problems in the world. We attune our organisation to this ambition. We focus outwardly, seek new markets and work together with government agencies, public bodies, businesses and organisations. We do this from an open, international and vital campus. We invest energy in creating more synergy and flexibility within our organisation: One Wageningen. We cherish and enhance the culture of cooperation, knowledge sharing, entrepreneurship and customer orientation. We are an attractive organisation where talent reaches its full potential. We are investing in a socially responsible and efficient organisation.

Outward orientation

We focus on the world around us: to better respond to trends, to access new markets and to build and strengthen relationships with partners. We position ourselves clearly and ensure that other parties are well-aware of our existence and value. We take an emphatically open approach towards others.

Strengthening the market approach through account management and market-oriented teams

Due to the reduction in government funding, we are focusing on new markets and looking for new ways to fund our research. We currently hold a leading position in terms of market contacts, both with businesses and non-governmental or large international organisations such as the World Bank. We are enhancing this position by continuing to professionalise the market approach and by sharing more information with each other.



7

We approach potential and existing major customers through focused account management and actively commit to nurturing and enhancing relationships with these customers. Considering that an important component of our financing comes from Brussels, we are increasing our visibility there through a special Wageningen-EU account team.

In case of major acquisition opportunities, in principle we do not operate from a single organisational component, but jointly. In this way we develop a powerful strategy with which we can determine in advance the required investment of resources and manpower. Furthermore, this enhances our multidisciplinary approach. We use the same joint approach with specific, delineated market fields. To this end we appoint market-oriented teams comprising multiple disciplines and sciences groups, so that this market field is optimally served. These teams are operational for a shorter or longer period.

Open and vital campus

For Wageningen staff and students, the campus is the vibrant, beating heart of Wageningen University & Research. We are giving the campus a stronger public function, not only for the city but also for businesses. We facilitate the R&D departments of international businesses and other knowledge-intensive organisations, and in this way create a hotspot for successful innovation. We provide access to research facilities in an inspiring environment that invites participants to meet each other and in this way establish a basis for structural cooperation.

Moreover, the campus provides the opportunity to invest in high-end facilities because the cost of using these facilities is shared. In the years to come, we will invest in realising the required infrastructure, such as the business incubator and a business centre with a flexible pilot plant, and in facilitating spinoffs and start-ups. We will also invest in the further enhancement of the liveliness of the campus.



Our image

We are investing in enhancing the recognisability of Wageningen University & Research in the various markets and media and among the public. Based on the idea of One Wageningen as our identity, we are developing a new branding policy. We are reconsidering the current situation in which we use various brand names for components of the organisation, and DLO as an umbrella term to identify the research institutes. But we are not taking any chances: a modification of the branding policy requires careful study and consideration of the advantages and disadvantages.

Political decision-making and public opinion have a direct influence on the functioning of our organisation. We are developing a coherent policy for Public Affairs focusing on politics (local, national and especially the EU), on society and on NGOs. We are aiming for an efficient relations network so we can be part of the right strategic networks. Our Public Affairs policy is a collaboration between the Executive Board and the Managing Directors, supported by policy specialists, communications staff and public affairs staff.

A network of alumni

Our alumni help us achieve our international ambitions, such as accessing new markets, establishing collaborations with strategic partners (businesses, universities, NGOs, government agencies and public bodies), recruiting students and acquiring funding. Consequently, our alumni in the Netherlands, but also those abroad, are particularly important to us. In the period to come, we will therefore invest in establishing alumni chapters, supported from Wageningen, in ten strategically important countries, including the USA, China, Indonesia, Ethiopia and Brazil.

International cooperation

Wageningen enjoys an excellent international reputation and fame. To maintain this status, we are expanding and improving our strategic partnerships and collaborations with institutes, universities and organisations in other countries. We uphold a large number of such partnerships. In the years to come

we will therefore reassess the cooperation agreements (or MoUs) with various partners to arrive at a coherent network based on strategic objectives. Because we work in a global environment and conduct business in countries where public and private parties sometimes have other governance standards and values, careful consideration in choosing collaborative partners is essential. We are transparent in the choices we make.

Our relationship with the national government

On the national government level, we interact with various ministries such as Economic Affairs, Education, Culture and Science, Foreign Affairs and Infrastructure and Environment. But we have a special relationship with the Ministry of Economic Affairs. This Ministry is responsible not only for the knowledge infrastructure in the Netherlands in the domain of agrifood and nature, but also for funding the research and education of Wageningen University & Research and the institutes for applied research. In our relationship with this Ministry, we endeavour to streamline the hierarchical relationship and funding of the research institutes with that of the TO2 institutes, while retaining the strengths of the current relationship. We are enhancing the relationship with the Ministry in economic and innovation policy, such as the Top Sectors policy.

Funding acquisition

We strive to inspire as many people and organisations as possible to contribute to the societal and scientific success of Wageningen University & Research through the investment of time, talent and/or funding. We have committed to an intensive funding acquisition campaign to strengthen the research and education at Wageningen University & Research through philanthropic contributions from alumni, donors and other relations. The campaign is part of the plan to celebrate the 100-year anniversary of Wageningen University & Research in 2018. In the funding acquisition process, we build a structural bond with influential alumni and other key figures who have a strong affinity with these topics. In this way we show that Wageningen University & Research, as one of the top players in its domain, can contribute to the solutions.

Culture and personnel

One Wageningen

An important objective in this strategic plan is to enhance the synergy between the different components in the organisation: *One Wageningen*. We are working on a culture in which cooperation is the norm, and we adapt, if necessary, the structure of our organisation to achieve this objective.

Cooperation is a tangible component of our standards and values. It is normal to help each other move forward and not to compete with each other. Cooperation leads to a better result. We are aiming more for group or organisation objectives. Managers show their appreciation and reward cooperation, both informally and through formalised individual assessments.

International organisation

In our organisation we are working on more hospitality and simplifying the complex procedures for students, staff and guests. We offer a lively environment for all nationalities, and we also pay attention to the partners or family of international staff. At the same time, we provide more professional support for the international mobility of our staff.

We are improving the situation for the non-Dutch employees in our organisation. We provide information in English and continue to promote English as the working language. We are focusing on better English proficiency for all our staff, and we are offering courses in international communication skills. In education, we are enhancing the interaction by having students work in intercultural teams. In student housing policy, we are encouraging Idealis to mix nationalities where possible.

We are continuing our communication with the municipality and other agencies such as the IND to improve the coordination of procedures and services. We are clustering our procedures for knowledge migrants in the recently opened Expat Centre.

Integrity

We expect integrity and a professional attitude from all of our employees. The procedures for violation of scientific integrity (suspected or otherwise) are clear; we are establishing similar procedures for questionable research practices, and ensuring that such practices can be brought up for discussion. Our first priority is the independent nature of our research, and we are completely transparent when it comes to other parties' involvement in this research. At the university we give explicit attention to the vulnerable position of PhD students. In the coming period, we will tighten the procedures for safeguarding integrity and improving communication on this topic.

Flexible, entrepreneurial and professional staff

We encourage an employee culture of market-orientation and entrepreneurship. By increasing the horizontal mobility for permanent and temporary positions within the organisation, we encourage employees to work together in new frameworks and to organise themselves more quickly if the market requires this.

We share the responsibility for the satisfactory functioning of employees, which can be summarised in the following three aspects: employability, workability and vitality⁴. Employees take responsibility for their personal growth and deployability, and managers actively facilitate and support them in this process, via the performance and development (P&D) system and in other ways.

We devote much attention to the development of talent and leadership, and we organise this process centrally. We expect our leaders to encourage employees to take account of the important values in the organisation: collaborating, being open for others, being entrepreneurial and developing oneself.

We promote diversity in the organisation and a balanced distribution of nationalities and genders

⁴ workability = the mental and physical ability to work; vitality = a healthy mental and physical state or spirit; employability = the capacity to obtain and keep work. *Strategic plan 2015-2018*



Mixed teams that represent a broad palette of competencies are more productive, more innovative and more cooperative. This promotes the quality of our education and research, contributes more to the needs of society and aids the development of new business. We are therefore implementing a gender balance action plan and are promoting cultural diversity. For this purpose we will monitor the possible consequences of the tenure track system and try to prevent negative outcomes for the gender balance in the academic staff. To attract and retain high-quality employees, our activities include supporting the recruitment of international talent and higher management with a joint team of specialised recruiters. In addition, we continue to create possibilities for people experiencing difficulties entering the labour market and for people with disabilities.

Quickly and effectively responding to changes in our environment and to the questions and needs of our customers requires both flexibility of individual employees and flexibility of the workforce as a whole.

Around our core of permanent staff we have therefore created a shell of flexible staff in high-value positions with which we can improve our response to varying market conditions.

We are continuing to professionalise project management. We have opted for fewer project leaders who are more professional and have better project management skills. We are providing them with better information and are reducing the distance between the project leaders and controllers.

Participational structure

We value the participational bodies as important partners for administrators in policy and decision-making. Promoting cooperation, dialogue and improving efficiency are important focus points for the functioning of the participational structure. We attach value to a constructive dialogue between the Executive Committee and the participational bodies as good representatives of their constituency, with good lines of communication to this constituency.

Support processes

Socially responsible and sustainable operational management

It suits our organisation and our domain that we set high standards for corporate social responsibility (CSR). In the years to come, we will commit more strongly to formulating a clear and recognisable CSR strategy. The core of this strategy involves making integral considerations in which scientific, social and economic interests keep each other in balance and in which our responsibility is not limited to our own activities. We safeguard the CSR policy in our organisation by means of the ISO 26000 self-declaration. This declaration is supplementary to the quality assessments that take place in education and research (accreditations, peer reviews, etc.).

We are currently one of the most sustainable education institutions in the Netherlands, and as a minimum want to maintain this position. Staff and students are intrinsically motivated to contribute to the sustainability of our organisation. In 2030 we will be energy neutral. This means that by 2018, we will be less dependent on natural gas: we are reducing our consumption and studying whether we can make the transition to green energy sources. By that time, we will generate 80% of our energy consumption ourselves from sustainable sources, such as wind turbines in Lelystad or solar panels.

Targeted and efficient processes

Various situations pose concrete obstacles to cooperation within our organisation, for example involving funding or personnel, especially between the research institutes and the university. Financial objectives are often limited to a single organisational component. The back and forth hiring of staff or expertise is cumbersome or relatively expensive. We are identifying these constraints and looking for solutions. In the coming period we will invest in a system of internal secondment; this will make interdepartmental hiring easier, will improve mutual acquaintance and the ability to find each other in the future.

We will also strengthen the cooperation between organisational components with overlapping activities that essentially still operate independently from each other. Here too, we are pursuing more coherence. For example, the digitalisation in the education system will lead to more coherence in the development and provision of education in various forms for various target groups. We are aiming for closer cooperation and coordination between the educational support components such as the Educational Institute, Wageningen Graduate Schools, Wageningen Academy and CDI.

The funding our organisation has available for research and education is declining rather than growing, while external regulatory pressure is increasing. This means that we must implement processes in a focused and efficient fashion. Our overhead is relatively low relative to other Dutch educational institutions, but we will continue to pursue greater efficiency.

In the period to come, we will critically evaluate our support processes with the goal of reducing the administrative burden for staff. We are working on a system of internal cost control with optimal information provision for ourselves and our customers. The system must comply with the increasing demands from legislation, and regulations are putting pressure on our intention to reduce overhead. We are improving efficiency through digitalisation, using workflows and commissioning a new financial system in which processes can be further optimised.

With the new IT systems, the possibilities for data warehousing and the resulting integral reporting have increased greatly. We can compare components more effectively and easily, and generate ad hoc information both centrally and locally. We are studying whether a Shared Service Centre for financial administration is desirable for the entire organisation. This can lead to a further improvement of the quality and accuracy of the information provision and reduce costs. We are making uniform agreements for funding regulations to develop a shared culture and set of values and to improve risk management.

ICT facilities

The ICT workplaces are developing from a fixed PC workstation to a virtual and open work environment. Students and researchers are free to choose how they want to work: at one of our workstations or on their own electronic devices. We support them in working effectively, at any time, both on-campus and elsewhere. In addition, we will continue to invest in a fast, reliable and flexible infrastructure, to which the users' apparatus can be connected. An open structure requires more attention for security. Security that is based on classification and the use of the data management guidelines has therefore become a specific area of attention.

To support the market approach, ICT will also be given a role in strengthening our business intelligence and data analytics and in the possible transition to an institution-wide customer relations management system. Application of new technology is also inseparably bound to the new education system in which digital forms of education are becoming increasingly important. The market provides flexible ways to convey information to users and support management processes. The hybrid forms of ICT (in-house or outsourcing combined with cloud services) that are being created require direction; for this purpose the organisation will be strengthened.

The information and communication policy focuses on cooperation and meeting (face-to-face or virtually) in a secure environment. We are anticipating the wishes of users by developing a cooperative environment with integrated means of communication (speech, image and chat). The successor to the current intranet will incorporate news, data management, employee interaction and cooperation.

Scientific information provision

Our library is an integral component of a world-wide scientific information network in which researchers and students receive and deposit information. The scientific information provided by the library, with the exception of a small heritage collection, will be fully digitalised. At the same time, the digital library will be integrated

and coordinated in a far-reaching manner with the digital work environment and personal needs of researchers and students. Furthermore, the role of the library as a functional administrator and content manager for the knowledge and output generated in Wageningen will be further developed. Central to this role is the optimal integration and management of various internal source systems (publications, data, project, authors) focusing on the findability, visibility and impact of Wageningen University & Research knowledge. The development to Open Access will result in a far-reaching change in how access to scientific information is funded. In this process, the library has role as director, advisor and quality monitor.

Accommodation

We accommodate our employees in an open and transparent work environment, so that cooperation becomes a matter of course. In addition, we create multi-user buildings, where employees are no longer restricted to working exclusively within the walls of their own organisational component. We are making the workplaces and laboratories flexible, efficient and multifunctional, so that sciences groups can more easily share spaces. We are actively promoting this policy. The new contacts that emerge as a result of this new accommodation policy will contribute to sharing knowledge and ideas within the organisation. As a result, we can form multidisciplinary teams more easily and accommodate them together.

The expectation is that student enrolment will continue to rise sharply in the years to come, but after 2020 a decline is expected based on demographic data. This has consequences for the space that is required for education. In the years to come we will make temporary modifications, but in the long term we can make do with the current real estate portfolio for education. ■

Implementation and progress

Key performance indicators

Our ambitions go far: through top-quality research and education, we want to make a substantial contribution to solving major social challenges. We want to have real impact. Ideally, we would like to measure our contribution to this impact – our contribution to solving these challenges – but that is an impossible task. After all, we cannot control much of what determines this impact.

This is why we have formulated indicators that measure our progress as we move forward in the direction set out in this plan. There are five important innovations, and for each innovation two key performance indicators have been identified. We will report the progress measured by these indicators annually.

The indicators are relevant for innovation, but together they do not yet create a complete picture of our organisation's performance. As a result, we will formulate a more extensive list of indicators that covers the entire breadth of the organisation. This list will include indicators for aspects such as scientific excellence, sustainability, socially responsible entrepreneurship, study success, employee satisfaction and financial key figures.

Increase and anchor synergy in the organisation, by tackling multidisciplinary challenges across various sciences groups through fundamental and applied research (*One Wageningen*).

KPI 1 We aim for an annual increase of 5% in the number of paid projects involving not only multiple sciences groups but also the university and the research institutes.

KPI 2 In 2018 the financial commitment in the five strategic investment themes should have at least doubled relative to our internal commitment by means of additional external funding (public and/or private).

Develop a new educational approach for larger numbers of students and the One Education System (develop online education tools for use with different target groups: campus, distance, initial and life-long learners).

KPI 3 Despite their growing numbers, on-campus students in 2018 rate WU education as positively as in 2014. Indicators are the average ratings given by the students in the National Student Survey (NSE) on the following aspects: teaching methods,

lecturer involvement with students, quality of feedback and ratio of small-scale to large-scale education.

- KPI 4 Every year, for at least one field of study or course, we develop digital education materials that are used for more than one target group or type of education (for example, material developed for MOOCs as well as on-campus education, or for both an online Master's programme and a short course).

Devote more attention to economic and social value creation, aimed at contributing to innovation in enterprises and strengthening the dialogue with society.

- KPI 5 We hold at least two Wageningen Dialogues on relevant social topics each year, with a steadily increasing number of parties involved.

- KPI 6 We aim for an annual growth of 5% in our contributions to innovation in business. We measure these contributions using various valorisation indicators, including the number of co-publications with industry and the number of patents and licenses.

Aim for a more collaborative approach to the market and increase the turnover of the research institutes in public-private and private markets.

- KPI 7 Between 2015 and 2018, we aim to achieve 5% annual growth in the turnover of the research institutes in public-private and private markets.

- KPI 8 Every year, at least one new market team starts work focused on a new market; this team consists of members from at least three sciences groups.

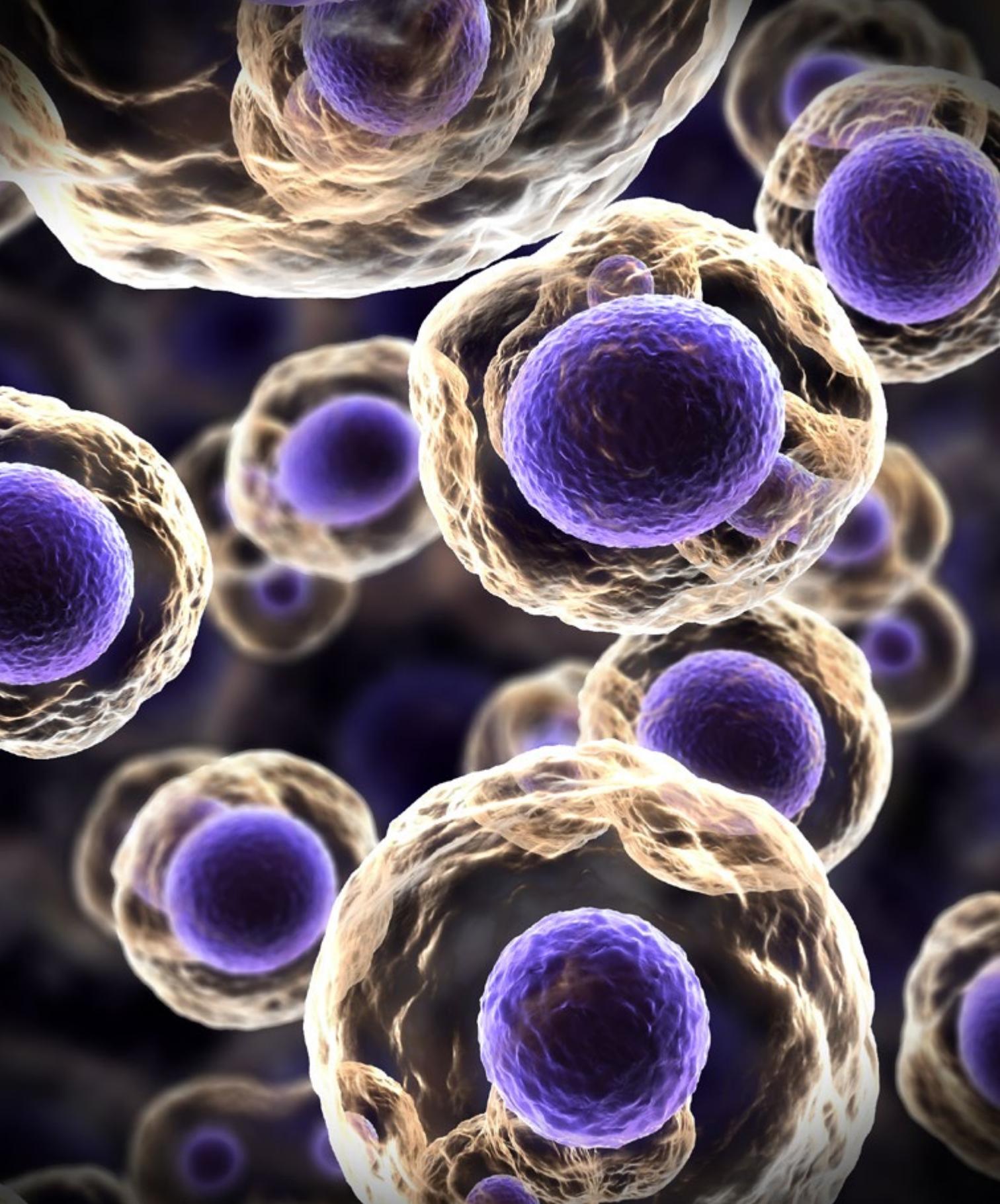
Strengthening our international connections.

- KPI 9 By 2018 we will have at least two strong partner institutions on each of the continents of Europe, America and Asia with which we collaborate at the institutional level in education and research. Such an institutional collaboration requires a minimum of three sciences groups. By 2018, we will have contributed significantly to two partner institutions in Africa.

- KPI 10 By 2018 we will have acquired a position in or contributed to the formation of three international consortia, through which we have accessed new markets for education and research and have made an international impact.

Implementation of the plan

We cannot achieve all our ambitions simultaneously. This is why an implementation plan will be drawn up annually, in which we identify a number of priority areas that will receive additional attention during that year. In these implementation plans, the objectives will be described in greater detail than in the present plan. We will appoint priority area leaders and closely monitor progress throughout the year. Naturally, we will also continue to monitor our environment so that we, if necessary, can shift our course in response to new developments. ■



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improve the
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