Development goals and measures (UMV) 2025-28

DTU National Food Institute

1 Summary

DTU National Food Institute conducts research in and disseminates—through advice, innovation, and teaching—sustainable and value-creating solutions in food and health for the benefit of society. This is the Institute's mission.

DTU National Food Institute's vision is to make a difference by helping create future prosperity through food and health research. The Institute prevents disease and promotes health, develops new and better foods for the growing population, and creates more sustainable technological solutions. See Figure 1.

The vision is in line with the UN Sustainable Development Goals, where the Institute's activities especially contribute to meeting the following goals: Zero hunger (2), Good health and well-being (3), Quality education (4), Industry, innovation, and infrastructure (9), Responsible consumption and production, with particular focus on circular bioeconomy (12), Climate action (13), and Marine life (14). See Figure 2.

The Institute's vision therefore seeks to solve some of the biggest social challenges the world is facing, including the green transition of the food system.

DTU National Food Institute is also known for combining a wide range of disciplines, and for its interdisciplinary approach, which allows the Institute to present research-based proposals for solutions to significant food and health challenges. The Institute delivers its outcomes through interdisciplinary collaboration in nutrition, chemistry, toxicology, microbiology, epidemiology, modelling, and technology.

DTU National Food Institute is an organization with big ambitions, and its research areas have been selected as beacons in a bid to meet the above societal challenges and support DTU's strategy. The Institute's research provides the basis for the socially relevant teaching, credible advice, and value-adding innovation which the Institute provides. The core of all the Institute's activities is dedicated employees who make up and support the knowledge-based organization.

In summary, the strategic research, teaching, scientific advice, and innovation objectives for the coming years are that DTU National Food Institute will:

Via ambitious research

- create solutions for a transition to more sustainable food production
- use the opportunities offered by digitalization in food and health research
- prevent disease and promote health through an interdisciplinary approach to research throughout the food chain.

Via socially relevant teaching

- contribute to the MSc in Food Technology being among the top five food science programmes in Europe
- equip food science students with the AI and digital competences that society and industry need
- further develop a learning and inclusive teaching environment with an emphasis on the lecturers' didactic competences.

Via credible scientific advice

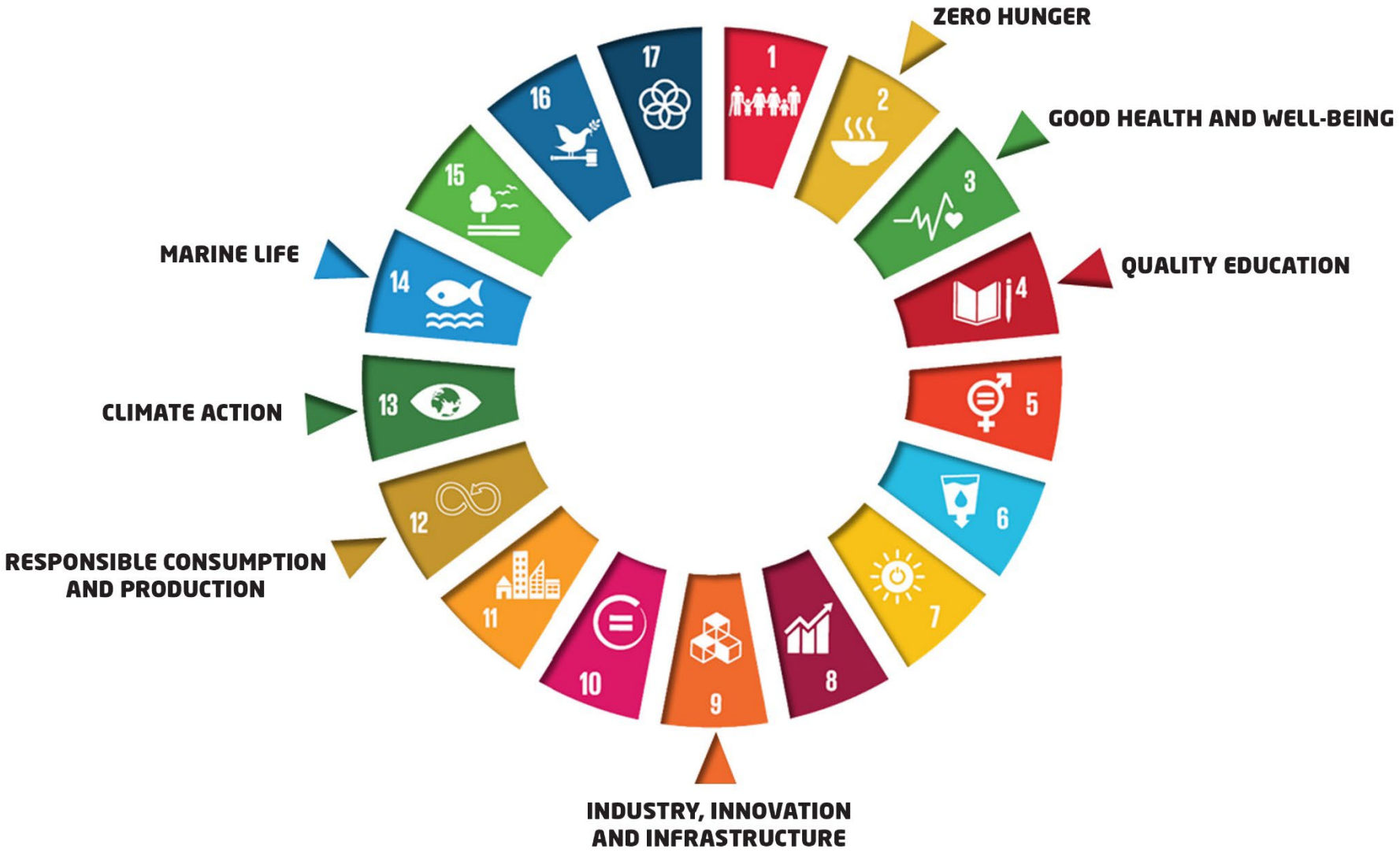
- maintain its position as the preferred provider of scientific advice within the Institute’s areas of expertise
- maintain an agile scientific advice organization that supports best practice, resource management, and collaboration
- expand risk-benefit assessments to include more perspectives
- collect data and make it available in a usable form to societal actors
- assess and explain new technologies.

Via value-creating innovation

- create innovation through new food technologies and digital solutions in health, circularity, and sustainability
- drive the green transition through public-private partnerships and knowledge-based alliances
- support the innovation efforts in the Institute by raising awareness of the opportunities to work with innovation.

Figure 1. DTU National Food Institute's vision

Figure 2. The SDGs to which the Institute contributes



2 Research

DTU National Food Institute's vision forms the basis for the strategic objectives for the Institute's research. These goals support DTU's strategic objectives of developing technologies for sustainable change and leading by example in the realization of the opportunities offered by digitalization.

The Institute's research strategy for the next four years is divided into the following areas. The common primary goal of the research is always to create knowledge that can help create value for society, in line with DTU's strategy.

Create solutions for a transition to more sustainable food production
The food system from farm to table has a huge impact on resource consumption and emissions of CO2 and other greenhouse gases. DTU National Food Institute wants to create more sustainable technological solutions and develop more sustainable foods that can help feed a growing global population. The Institute aims to contribute to turning used resources into new resources in a circular food system. The focus will be on more sustainable alternatives to meat based on plants, insects, marine resources, and biotechnological solutions such as precision fermentation. The research ranges from optimizing existing specific food production forms and processes to completely rethinking the current food industry to make the sector more sustainable, as shown in Figure 3 and explained below. The vision is to adapt diet and production systems to avoid exceeding the planet's capacity.

A sustainable diet must be climate-friendly in terms of CO2 emissions and resource consumption, and be based on protein sources that are more sustainable than meat. Health and safety must also be considered, as described below. Diet must meet consumer preferences and taste good. Any food that is not eaten does not contribute to reducing food waste or increasing sustainability. The Institute therefore also focuses on research that contributes to improving and analysing taste.

DTU National Food Institute develops mathematical models that can be used to reduce the consumption of resources in food production, avoid food waste and food loss, and maintain and increase food safety. Such models are becoming increasingly relevant to society and industry, in part due to new EU requirements to quantify and document sustainability.

The Institute is rethinking sustainable production in the food sector through new plant-based foods and beverages, biotechnology-based production of food and new ingredients, and the use of raw materials from marine resources, side streams, biomass, invasive species, and insects. Such raw materials can be used as novel foods in their own right or for extracting substances and food ingredients that benefit health. In the coming years the focus will be on new techniques for genetically modifying plants (NGTs), which can play a key role in future sustainable plant production. The Institute has the capability to develop such techniques and to assess the risks of using them. In collaboration with other DTU departments, DTU National Food Institute is also strongly positioned to utilize the university's infrastructure to study process optimization, biorefining, and ways to scale-up new production technologies.

Utilizing the opportunities offered by digitalization in food and health research
DTU National Food Institute is actively working to integrate and exploit the many new opportunities digitalization offers in its research and to implement FAIR-based databases.

The cross-sectoral approach, including the work on predicting and monitoring the spread of antibiotic resistance and infectious diseases, requires complex bioinformatic models and collecting enormous amounts of data globally. The Institute has an ongoing focus on recruiting employees with digitalization competences.

For example, in 2024 the Institute employed a data architect who will help increase interdisciplinary collaboration with the aim of better utilizing the Institute's data.

The Institute also takes a holistic approach to food products, that focuses on analysing both the health hazards and health benefits and calculating an overall risk-benefit balance based on mathematical models. In the coming years, the Institute will increasingly collect and process complex data and exploit the rapidly growing opportunities offered by AI.

The Institute is developing models to predict quality, microbiological and chemical safety, and degradation of bioactive substances, markedly improving research quality. In the years ahead, the Institute will use virtual models such as digital twins for food processes in research, with the aim of optimizing resource consumption in production. Such models can interact with other mathematical models, for example for predicting microbiological food safety.

The Institute will increasingly reach out to partners both at DTU and at other universities to build a network that supports the use of digitalization opportunities in research.

Preventing disease and promoting health through an interdisciplinary approach to research throughout the food chain
The major challenges of climate change, urbanization, and industrialization of all food systems affect the health of all people and create a risk of exposure to harmful substances. A global food crisis is predicted, which includes food shortages, malnutrition and overnutrition, and diseases related to harmful chemical substances or microorganisms in food.

The foundation for DTU National Food Institute's research is a One Health mindset (Figure 4), that holds that people, animals, and the environment cannot be seen independently of each other, and collaboration across different sectors is necessary, as no discipline or organization can tackle the challenges facing the world alone. The Institute's research thus adopts an interdisciplinary approach to healthy foods, food safety, toxicology, and disease prevention by conducting research in:

1. healthy and nutritious diet from more sustainable sources
2. protecting the general public from exposure to harmful chemicals, allergens, and microorganisms, from both food and packaging
3. developing improved methods for risk assessment of infectious diseases, antimicrobial resistance, GMOs, and chemicals
4. the complex correlations between foods, health, and disease in interaction with gut microorganisms and the surrounding environment, for example in risk benefit assessments.

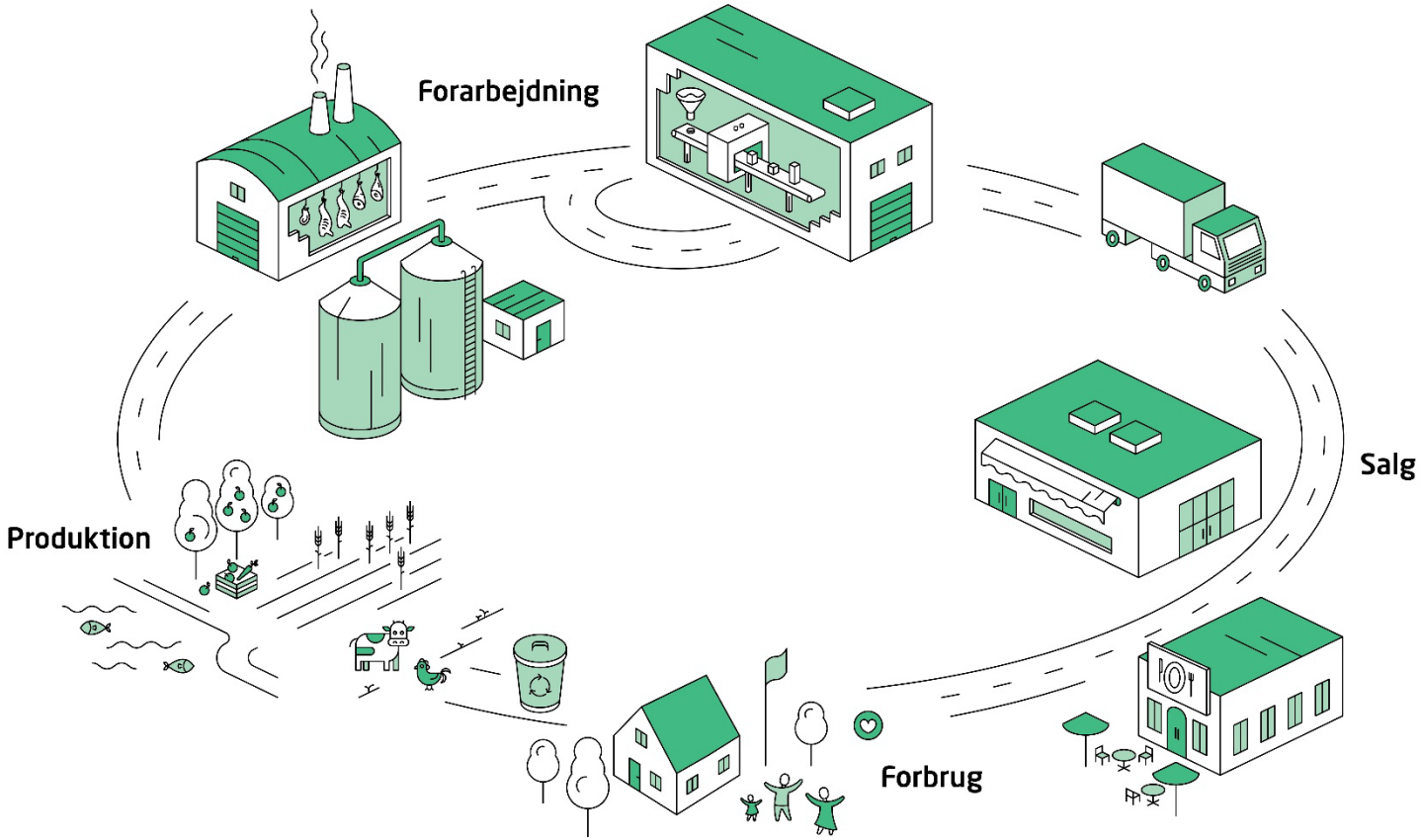
The Institute is developing analytical methods to assess exposure to microorganisms and chemical substances across national borders. The Institute's research in chemistry and microbiology is consequently anchored in Europe or globally via networks and collections of samples worldwide. The research in food technology can develop processes that increase the level of beneficial substances and microorganisms and inhibit the development of the harmful substances.

The Institute aims to strengthen its mechanistic understanding of the effects of microorganisms on the metabolism of substances in the gut, the development of food allergies, factors affecting the bioavailability of healthy substances such as vitamins, and how exposure to mixtures of chemical substances can lead to cocktail effects in the foetus.

In the development of new food products from alternative sources, it is essential that health and food safety are considered from the outset. The Institute

will work even more towards this in the coming years. Collaborations will consider cultural and preference barriers to new dietary habits and how to overcome them, with a particular focus on younger generation.

Figure 3. Research into more sustainable technological solutions throughout the food chain



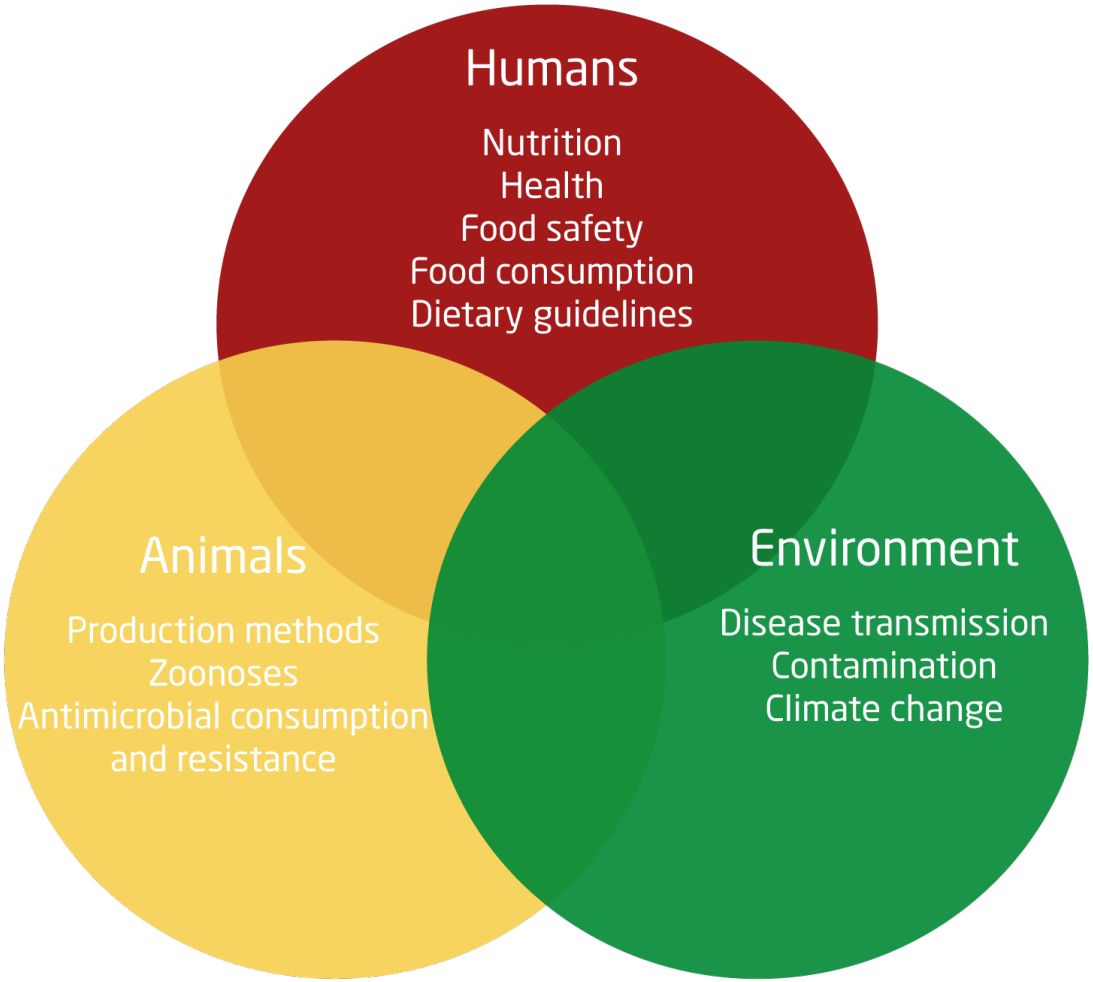


Figure 4. Research focus in a One Health mindset

Table 2. Research.

Publication output	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Scientific articles in WoS-indexed journals	262	284	314	258	267	260	260	280	280	280
Scientific articles in other journals	13	20	19	14	20	20	20	20	20	20
Scientific contributions to conferences	62	15	10	22	14	40	50	50	50	50
Dr. Thesis	0	0	0	0	0	0	0	0	0	0
Other publications	129	70	114	341	180	90	100	100	100	100
Scientific articles in WoS-indexed journals per researcher (VIP)	1.8	2.0	2.2	1.8	1.9	1.7	1.7	1.7	1.7	1.7
Open Access to peer-reviewed journal articles and conference contributions from the previous year in %	84	83	85	77	89	85	90	90	90	90
Open Access to peer-reviewed journal articles and conference contributions from the previous year incl. embargoed publications in %	88	86	86	78	89	90	100	100	100	100

Citation impact is not projected

Citation impact	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Citation impact (citations per publication)	16.0	15.7	19.8	25.3	25.3					
Category normalized citation impact	1.74	1.72	2.07	2.42	2.57					
Share of publications in top 10%	21.7	20.8	20.3	19.2	18.0					
Share of publications in top 1%	4.2	3.9	4.2	4.2	3.5					
External funds for research projects	**Actual 2019**	**Actual 2020**	**Actual 2021**	**Actual 2022**	**Actual 2023**	**Budget 2024**	**Budget 2025**	**Budget 2026**	**Budget 2027**	**Budget 2028**
External funding for research projects applied for in DKK	291,637 TDKK	427,635 TDKK	352,930 TDKK	443,385 TDKK	427,634 TDKK	400,000 TDKK	400,000 TDKK	400,000 TDKK	450,000 TDKK	450,000 TDKK
External funding granted for research projects in DKK	119,489 TDKK	102,311 TDKK	77,815 TDKK	108,468 TDKK	100,019 TDKK	130,000 TDKK	140,000 TDKK	140,000 TDKK	150,000 TDKK	150,000 TDKK

3 Study programmes

At DTU National Food Institute, study programmes at all levels are aimed at the needs of society and industry for highly qualified graduates and anchored in: BEng in Food Safety and Quality, BSc in Food and Nutrition (with UCPH), MSc in Food Technology (including part-time MSc) and MSc in Food, Quality, and Safety (continuing education). The study programmes are well-established, run smoothly, and are regularly discussed with the employer panels. However,

applications and enrolment are declining, especially for the BEng programme (the maximum has been reduced to 20 students) and the BSc with UCPH. One would expect there to be great interest in engineering study programmes for the food sector, given the strong focus on food and food products in society, as the food sector is one of the major CO2 emitters, and a shift away from animal food is underway—and the challenges with the food supply and the green transition are great in Europe. Against this background, the strategic goals are that DTU National Food Institute:

Contributes to the MSc in Food Technology being among the top five food science programmes in Europe
In order to improve the food science programmes and enrolment levels, it is important to analyse how they are positioned and perceived by students, industry, society, and other stakeholders in Denmark, and Europe in relation to Europe's best food science programmes. In what ways are they unique and how can they become among the best in Europe? The goal is also to change and adjust the content and titles of the study programmes, to make them more up-to-date and attractive, and improve communication for the recruitment of new students.

A major shift away from traditional food and food production processes has just begun and requires food engineers with new competences. The Institute already teaches—both theoretically and in laboratory courses—about technologies for a more sustainable transformation of the food sector. There is a heightened focus in the industry on new food technologies such as by-products, new ingredients, fermentation, hybrid foods, etc., and this demands new competences in nutrition, risk analysis, new EU directives, and the legal requirements set for novel foods and production microorganisms. One goal is therefore to develop a study line on 'sustainable transformation of food systems' jointly with other departments in the coming period.

Provides food science students with the AI and digital competences that society and industry need
The Institute teaches various topics related to digitalization, data collection from equipment, data processing and modelling, bioinformatics, and big data, but given the rapid development in AI and digital systems, future food engineers are also expected to need other competences. In the coming period, DTU National Food Institute will therefore ensure that (i) all food students achieve the necessary AI and digital competences, (ii) all subjects have relevant AI and/or digital learning objectives, and (iii) AI and digital competences in the faculty are upgraded.

Further develops a learning and inclusive teaching environment with an emphasis on the lecturers' didactic competences
The Institute has two functional forums for teaching: Faculty Forum for strategic discussions, and Teach Food for teaching practices for all lecturers at the Institute, where teaching methods, pedagogical tools, UDTU capstone projects, etc. are presented, Learn is discussed, and the focus is on diversity and inclusion. It remains a goal to increase the 'scholarship of teaching and learning' in the Institute, in order to raise the quality of teaching, become one of Europe's best food science programmes, make the teaching more recognized and attractive to Institute faculty and tenure trackers, and present this as a possible path to publications and grants.

Learn is used by all lecturers at the Institute, but the competences have been developed through an organic process, and there are many tools that are not used optimally. The Institute will therefore promote the use of sophisticated features and tools that can make it easier to give students feedback and evaluate them.

3.1 BSc, BEng, and MSc programmes

The BSc study programme will be improved jointly with the University of Copenhagen in dialogue with employers. The students' change in focus from dairy to new areas such as plant-based foods is expected to continue. The Institute is providing teaching on processing for the green transition to plant-based foods as well as for the traditional foods which are the bedrock of the Danish food industry.

DTU National Food Institute is contributing to the new BSc in Human Life Science Engineering at DTU through several courses. There are no food science courses in the BSc in Biotechnology at DTU. The goal is to ensure that students from both BSc programmes can meet the necessary requirements to be admitted to the MSc in Food Technology.

Following the study programme evaluation in 2024, the BEng programme in Food Safety and Quality will be further developed. The plan is to improve CDIO knowledge and practice in the programme. During 2024, the Institute will refresh the first 3-4 semesters of the study programme due to changes following the implementation of the polytechnic foundation. The Institute is also contributing to the BEng in Fisheries Technology and will be active in developing the programme and moving it to Hirtshals jointly with DTU Aqua.

The MSc study programme in Food Technology must be updated by discontinuing existing focus areas and creating study lines to increase the progression in the programme, sharpen the profile of the graduates, and clarify the unique competences the students acquire in relation to other universities. The aim is to create study lines in new disciplines (such as hybrid food and sustainable transformation of food systems) to meet the future needs of society and industry. To improve the progression in the study programme, the winter intake will be discontinued.

Table 3.1 Education and teaching (BEng, BSc, MSc)

Education and teaching	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Percentage completion of scheduled teaching activities	100.0	99.8	100.0	99.7	99.8	100.0	100.0	100.0	100.0	100.0
Total number of students on 5-point courses	1,466	1,705	1,741	1,694	1,635	1,700	1,700	1,700	1,700	1,700
Number of students on special courses	95	127	72	71	72	80	80	80	80	80
Total number of completed courses in 5-point units	49	53	58	53	54	54	54	54	54	54
Number of completed traineeship agreements (BEng)	35	38	39	30	24	30	30	20	20	20
Number of completed BEng projects	28	29	26	35	31	30	35	25	25	25
Number of completed BSc projects (MSc in engineering)	23	22	21	19	29	25	25	25	25	25
Number of completed graduate theses (MSc in	51	57	67	50	55	60	60	60	60	60

Education and teaching	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Total number of course units	76	83	88	79	83	82	83	83	83	83
Total number of course units per faculty	2.6	2.8	2.9	2.3	2.3	2.2	2.2	2.3	2.3	2.3
Student FTEs on ordinary courses	122	142	145	141	136	140	135	135	135	135
Student FTEs on projects	56	61	60	53	59	60	65	65	70	65
Student FTEs on traineeships	18	19	20	15	12	20	20	20	20	20
Student FTEs in total	178	203	205	194	195	200	200	200	205	200
Student FTEs per faculty	6.1	6.8	6.7	5.5	5.5	5.4	5.4	5.6	5.7	5.6
Faculty	29.4	29.8	30.5	35.1	35.4	37.0	37.0	36.0	36.0	36.0

3.2 PhD programme

DTU National Food Institute expects an intake of around 14 new PhD students per year going forward.

The Institute focuses on initiatives that increase the well-being of PhD students, support social events and place PhD students in shared offices. New PhD students are assigned a more experienced PhD 'buddy' and undergo an onboarding programme.

The Institute wants to increase the number of students who chose to do a research stay abroad, and sees it as a cornerstone of the new PhD structure that more time is spent on the scientific project. However, this is a challenge due to increasing demands for other activities.

On the Institute's mandatory internal PhD course, the students are introduced to a number of support functions at DTU. This supports the innovation potential of their projects and enhances their career opportunities. From 2024 they will also be asked to present their research groups to each other as part of the course. This will ensure that they understand the context in which they are working and are broadly informed about the Institute's research.

PhD students assist in the teaching at DTU National Food Institute and other DTU departments as necessary, and play an important role in relation to practical co-supervision of BSc and MSc project students. A number of PhD students will be involved in the Institute's advisory tasks.

The Institute will work with the DTU central administration to further develop supervision competences for PhD supervisors and thereby improve the interaction between PhD students and supervisors.

From 2024 the Institute will have a specific focus on supporting the independent research processes of tenure track researchers and involving them in a coordinated and strategic manner in teaching. Together, these measures will improve the education of tenure trackers.

Table 3.2 Research training

Courses are stated in academic years and FTEs are stated in calendar years

PhD courses available	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Professional identity courses (norm 1-4 courses)	1	1	1	1	1	1	1	2	2	2
Courses with a technical focus (norm 1-8 courses)	3	2	2	2	2	5	5	6	6	6
Service courses (norm 0-2 courses)	0	0	0	0	0	0	1	1	1	1
Full-time equivalent students (number of students x number of ECTS point / 60)	1.3	1.5	3.8	0.5	2.6	3.0	3.0	3.0	3.0	3.0
PhD students	**Actual 2019**	**Actual 2020**	**Actual 2021**	**Actual 2022**	**Actual 2023**	**Budget 2024**	**Budget 2025**	**Budget 2026**	**Budget 2027**	**Budget 2028**
Intake – Industrial PhD students	1	1	0	1	1	2	2	3	3	3
Intake PhD students co-financed by the business community	0	2	2	1	1	4	5	5	5	5

3.3 Lifelong learning

DTU National Food Institute will contribute to the development of CFE (continuing and further education) in collaboration with DTU Learn for Life, with a focus on food safety, including risk assessment. The Institute is undertaking extensive international capacity building through development projects, particularly in Africa and Asia, in its role as a European reference laboratory. The activities are of great importance to the recipients and for disseminating Danish experience and solutions.

The Master in Sustainable and Safe Food Production was launched in collaboration with the University of Copenhagen in spring 2022. The study programme has an international aim, is offered in English, and is based on e-learning combined with an annual on-campus conference. The Institute will disseminate awareness of the study programme, increase the intake, and make it financially sustainable.

An expected measure to attract students to the Master programme and other CFE activities is to establish the 'European Excellence Label in Food Safety Risk Assessment' in collaboration with EFSA and EU member states. DTU National Food Institute is participating in a project related to this, which will enter its second phase in 2025 with the roll-out of a platform for sharing information about and marketing quality courses on risk assessment in the food sector. In the second phase, the focus will also be on developing a cohesive master programme, where the Master in Sustainable and Safe Food Production can come into play. The Institute will also participate actively in the European dialogue on the need for and availability of CFE in other areas, such as sustainability and digitalization.

The Institute offers the majority of its ordinary courses as open education, which can contribute strategically to meeting the needs of the industry and public authorities for CFE. Individual seminars, webinars, MOOCs and workshops will also be offered.

Table 3.2 Lifelong learning

Continuing education activities (number)	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Number of short courses (IDV)	7	8	2	2	0	2	2	2	2	2
Number of MOOCs	3	3	3	0	3	4	4	4	4	4
Number of subsidized continuing education activities (separate modules)	0	0	0	0	0	0	0	0	0	0
Number of part-time MSc/part-time BEng programmes	0	0	1	1	1	1	1	1	1	1
Continuing education activities (FTEs)	**Actual 2019**	**Actual 2020**	**Actual 2021**	**Actual 2022**	**Actual 2023**	**Budget 2024**	**Budget 2025**	**Budget 2026**	**Budget 2027**	**Budget 2028**
Number of student FTEs on MSc/BEng programmes		0.000	0.000	0.625	3.166	3.000	4.000	4.000	5.000	5.000
Number of student FTEs on flexible MSc/BEng programmes	0.167	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000
Number of student FTEs in individual subjects	0.083	0.208	0.083	0.000	0.375	0.350	0.400	0.400	0.400	0.500

4 Scientific advice

The aim of scientific advice is to ensure safe and healthy food and consumer products for the benefit of consumers, in Denmark and globally. The scientific advice activities of DTU National Food Institute are primarily aimed at government authorities in Denmark, Europe, and globally, and the Institute thereby contributes broadly to the foundation for the development of policy, rules and framework conditions for the food sector—'Science to policy'. The Institute aims to continue to be a trusted player that is recognized for a high level of professionalism, holistic understanding, and a balanced approach in relation to authorities, industry, and consumers.

Maintain position as the preferred provider of scientific advice within the Institute's areas of expertise
This is the overall strategic goal of scientific advice on food safety, chemical product safety, and nutrition, primarily to Danish and international authorities. The Institute also wants to consolidate its position as the preferred Danish partner for both national and international companies.

Maintain an agile scientific advice organization that supports best practice, resource management, and collaboration
The food sector is developing rapidly, and processes, food, and citizens' dietary habits are becoming increasingly complex. This represents a challenge to authorities in performing their duties and increases their need for advice. The Institute has to be able to respond with agility and bring together advisers with different competences to meet the need.

The goal is that the Institute, in collaboration with internal partners (such as the Office for Finance and Accounting and Office for Research, Advice and Innovation) and the recipients, will promote dialogue and task management, particularly in relation to cross-disciplinary advice, to ensure that resources are utilized optimally for both recipients and DTU.

The goal is also to ensure that DTU National Food Institute has relevant advisers with the right competences and qualifications, for example through strategic continuing education and generational change, and through participation in research into new and improved assessment methods.

At the European level, the European Food Safety Authority (EFSA) encourages closer cooperation through formal partnerships with specific Member States (MSs) in specific, defined areas. The aim is to identify areas together with the Danish Veterinary and Food Administration where Denmark sees value in collaborating with EFSA and selected MSs, and thereby optimizing resources at the European level. A focus area could be support to reassess the Novel Food legislation, including providing data for risk assessment of side streams and other underutilized raw materials for the production of new, safe, and healthy foods and food ingredients.

The goal is for DTU National Food Institute to enter into agreements with EFSA on participation in partnership(s) in specific areas of interest to the Institute's research and Danish society.

In addition to its collaboration with EFSA, the Institute performs international advisory tasks—particularly for the EU, WHO, FAO, and OECD, but also for the Nordic Council of Ministers and a number of national authorities in other countries.

Expand risk-benefit assessments to include more perspectives
The production of food and consumer products and their use by citizens have a major impact on society and the environment in many ways. New or existing products must therefore be assessed from a wide range of perspectives such as nutrition, health, safety, sustainability, and climate footprint, as well as economy, social balance, and culture. For example, the vision of promoting plant-based diets and the use of side streams from food production are primarily explained by positive health and environmental effects, while potential risks and new food technologies are less discussed in the public debate.

DTU National Food Institute is at the forefront internationally in linking dietary advice, nutrient recommendations, sustainability, and climate labelling, and is also a strong player in the development of risk-benefit assessment as a separate research area. The Institute provides specific scientific advice in these areas, where the focus has been particularly on a balanced assessment of food safety and health. During the UMV period, the Institute will expand the area so that more perspectives are integrated into new models, with the aim of improving evidence-based decisions.

The goal is to be able to prepare risk-benefit assessments of new foods, changed dietary compositions, or new technologies that, for example, promote the

green transition and reduce negative climate impacts—without compromising food safety or health.

Collect data and make it available in a usable form to societal actors
Research and scientific advice are based on data. The quality of advice is therefore dependent on high-quality data being available and in digitized form. Sharing data has been discussed for many years and has proven more difficult in practice than in theory. DTU National Food Institute will continue to actively work towards improved data sharing.

EFSA has a goal of digitizing the European monitoring of the food sector, and DTU National Food Institute is participating in this work to bring Danish perspectives to bear on it and help define and develop systems and tools that are implemented in the EU.

The goal is to collect quality data from many different sources and create a 'data hub' to serve as a foundation for descriptions, analyses, assessments, predictions, etc. to support researchers, authorities, industry, and consumers.

The goal is also to digitize and automate processes for handling Danish surveillance data from the Danish Veterinary and Food Administration, which will be collected and sent to EFSA. Data is to be illustrated and presented on interactive platforms for the benefit of users, authorities, and others.

Assess and explain new technologies
The industry's implementation of new technologies, materials, and raw materials must be approved within the applicable legislation, to ensure that health and safety are not compromised. DTU National Food Institute sees it as one of its key tasks to keep abreast of technological development and have the research foundation to be able to describe the advantages and disadvantages of a given technology. This will allow the Institute to support the work of the authorities on adjusting and changing the legislative framework for the sector's development.

During the UMV period, DTU National Food Institute sees the following as areas where there is a need for the Institute to contribute to the form of advice and new knowledge as a foundation for the work of the authorities towards improvements in the legislation:

- New risk assessment models for chemical substances (NAMs), which will help in phasing out animal trials in the longer term
- Improving the foundation for the work of the authorities towards regulatory changes resulting from new EU legislation on new genomic techniques (NGTs) to change the genetic material of plants and, in the long term, microorganisms.
- A PFAS knowledge task force at both national and European level
- Risk-benefit assessments that can support a paradigm shift in areas such as Novel Food legislation.
- Risk assessments that can support the sustainable use of side streams from food production without compromising food safety or animal health
- Characterization and safety assessment of newly isolated microorganisms for food production
- Risk assessments and validation studies to support the use of new technologies/sensors to monitor microbiological food safety at herd level and in slaughterhouses and other food production companies.
- The goal is to 'translate' new technologies into knowledge that supports the work of the authorities on the regulation and development of the industry's opportunities.

5 Innovation

Research in new technology and consumer behaviour is essential to our ability to adapt to a future warmer climate and the rapid changes in the food system. Innovation occurs across research, education, and scientific advice. DTU National Food Institute's innovation activities therefore focus on contributing to the green transition by creating the foundation for a healthy population through healthy, safe, and more sustainable food products.

Against this background, the strategic innovation goals are for the Institute to:

Create innovation through new food technologies and digital solutions in health, circularity, and sustainability
The Institute aims to achieve this through strategic build-up of research capacity and infrastructure in selected areas. This includes strategic build-up of the Institute's pilot plant facilities, including a platform for digital twins.

Furthermore, the Institute will strengthen the students' learning by putting the green transition in the theoretical context of health, circularity, and sustainability. The students acquire a practical understanding in connection with internships and projects with companies and organizations. The Institute thus forges even closer ties with the important partners in the companies.

Drive the green transition through public-private partnerships and knowledge-based alliances
The Institute will achieve this by being an active partner in the Food & Bio Cluster Denmark cluster organization, and will work through this partnership to increase the innovation capacity of the sector. A maturation of the partnership is underway, and the Institute will continue to hold events of relevance to food companies in collaboration with Food & Bio Cluster Denmark.

The Institute will also work with other companies, partners, and specific programmes to create knowledge transfer to industrial development and innovation centres, with scaling in mind, in part via AgriFoodTure under Innomission 3, Plant2Food, START, FOODHAY and Industry Days.

Support the innovation efforts in the Institute by raising awareness of the opportunities to work with innovation
The philosophy behind the innovation work is greater awareness among the Institute's researchers of the opportunities resulting from a focus on technology transfer and a commercial benefit from their scientific work. The initiative ranges from creating early awareness of which research results can form the basis for industrial collaboration and possible spin-outs, to supporting projects that can mature commercially through internal and external innovation grants. DTU Skylab and TTO are natural partners for spreading and strengthening the innovation culture and commercialization at the Institute.

Table 5. Innovation

Student innovation	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Number of BEng projects, BSc projects, MSc theses completed together with the business community	46	42	35	62	71	50	55	55	55	55
Collaboration with companies	**Actual 2019**	**Actual 2020**	**Actual 2021**	**Actual 2022**	**Actual 2023**	**Budget 2024**	**Budget 2025**	**Budget 2026**	**Budget 2027**	**Budget 2028**
Number of projects with the business community	58	62	53	75	69	65	65	65	65	65
Number of publications in Web of Science-indexed journals in collaboration with companies in the previous year	55	80	83	63	54	85	85	85	85	85
Commercialization	**Actual 2019**	**Actual 2020**	**Actual 2021**	**Actual 2022**	**Actual 2023**	**Budget 2024**	**Budget 2025**	**Budget 2026**	**Budget 2027**	**Budget 2028**
Number of commercializable Institute inventions	9	4	0	5	5	3	5	5	5	5
Number of sales, license and option agreements on the basis of IPR from the Institute.	2	0	0	2	0	1	2	2	2	2
Number of start-ups (by employees based on IPR, knowledge and technology from the Institute). The company must have been issued a CVR no.:	0	0	0	0	0	0	1	1	1	1

6 Partnerships

DTU National Food Institute enjoys good cooperation with the large research environments at the University of Copenhagen (UCPH) and Aarhus University (AU) on research projects, scientific advice, infrastructure, and educational activities. All eight Danish universities have joined forces in the START centre, where the purpose is to form the scientific interdisciplinary basis for implementing the green transition of the food system. The Institute is also part of the Biosolutions Alliance and the major partnership under Innomission 3 for the green transition of the food and agriculture sector, AgriFoodTure, where DTU has influence through the council and board.

The Institute will promote innovation opportunities by actively seeking the possibilities for collaboration offered by DTU's strategic partnerships, including Nordic Five Tech, EUROTECH, Global Bioeconomy Alliance, collaboration with international alliance universities, and with Greenland Self-Government.

The Institute also contributes to making DTU Corporate Partnerships an activity that provides value for the Institute, DTU, and its partners. This is done through joint study programmes, PhD projects, and research and development projects.

On behalf of DTU, the Institute participates in the Food & Bio Cluster Denmark cluster organization to increase DTU's visibility and cooperation with—in particular—SMEs in Denmark.

The Institute has a strategic partnership with the two most important independent food organizations in Europe: the Federal Institute for Risk Assessment (BfR) in Germany and the French Agency for Food, Environmental and Occupational Health & Safety (ANSES), with which the Institute will continue to launch new projects. The American Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA), the European Food Safety Authority (EFSA), the European Centre for Disease Prevention and Control (ECDC), and the Dutch National Institute for Public Health and the Environment (RIVM) are also strategically important partners. The Institute is also part of large European networks under Horizon Europe (PARC, Animal Welfare, and soon OHAMR) and the European One Health Association (EOHA).

7 Human resources

Table 7. General HR Data (FTEs). Contact: Martin Hansen, AHR (mahani@dtu.dk)

Faculty

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Professor	11.1	10.4	10.1	10.5	9.9	12.0	13.0	14.0	15.0	15.0
Professor with special responsibilities	3.0	2.3	2	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Senior Professor of Engineering	0.0	0.0	0	0.0	0.0					
Docent	0.0	0.0	0	0.0	0.0					
Associate Professor	13.5	15.7	15.2	17.2	17.4	17.0	16.0	15.0	15.0	15.0
Assistant Professor	1.8	1.3	2	6.7	8.1	8.0	8.0	7.0	6.0	6.0
Total employee category	29.4	29.8	30.1	35.1	35.4	37.0	37.0	36.0	36.0	36.0

Research staff

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Senior Scientist	0.0	0.0	0.0	0.0						
Senior Researcher	35.5	32.0	27.8	28.7	30.8	35.0	35.0	38.0	39.0	39.0
Senior Adviser	19.7	18.1	15.5	13.7	12.3	12.0	12.0	13.0	13.0	13.0
Researcher	8.5	7.9	7.6	7.9	7.9	8.0	8.0	9.0	10.0	10.0
Project Researcher	0.0	0.0	0.0	0.0	0.0					
Postdoc	32.3	39.8	41.7	34.9	36.3	41.0	43.0	45.0	45.0	46.0

Research Assistant	19.7	15.8	22.7	19.9	19.0	19.5	19.0	20.0	21.0	22.0
	0.0	0.0	0.0	0.0	0.0					
Total employee category	115.6	113.6	115.3	105.2	106.3	115.5	117.0	125.0	128.0	130.0

Part-time scientific staff

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
External Associate Professor	***0.3***	***0.6***	***0.6***	***0.3***	***0.2***	***1.0***	***1.0***	***1.0***	***1.0***	***1.0***

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Teaching Assistant	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Assistant Lecturer	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
External Examiner	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total employee category	0.3	0.7	0.7	0.4	0.2	1.0	1.0	1.0	1.0	1.0

Other scientific staff

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Guest Professor/Associate Professor	0.0	0.0	0.0	0.0	0.1	1.0	1.5	1.5	1.3	1.3
Scientific Staff employed under social scheme	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.2	0.2	0.2
Other Scientific Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total employee category	0.0	0.0	0.0	0.1	0.1	1.2	1.7	1.7	1.5	1.5

PhD

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
PhD Student	38.9	37.8	34.7	39.4	46.2	48.0	47.0	47.0	46.0	45.0
Total employee category	38.9	37.8	34.7	39.4	46.2	48.0	47.0	47.0	46.0	45.0

Technical and administrative staff

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Deputy Director, Head of Administration	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
Section Management				3.2	3.7	3.0	3.0	3.0	3.0	3.0
Managers/Consultants	17.9	18.0	17.0	0.0	0.0					

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Academics	26.8	26.0	22.9	35.4	35.9	37.8	38.0	39.0	38.0	38.0
Office Workers	8.7	7.4	6.1	5.5	4.1	4.5	4.5	4.6	6.0	6.0
Technicians	64.2	56.9	47.6	47.3	47.5	47.0	46.5	46.0	47.0	47.0
Students/Apprentices	7.9	6.9	5.1	5.0	4.1	4.5	4.8	5.2	6.0	6.0
Student Assistant	3.4	1.8	2.9	2.6	1.4	3.0	3.0	3.0	3.0	3.0
Technical/Administrative staff employed under social	2.8	2.4	2.3	0.4	2.3	2.0	2.0	2.0	2.0	2.0
Other Technical/Administrative Staff	0.3	0.5	0.5	7.4	7.5	7.5	7.5	7.5	7.5	7.5
Total employee category	131.9	119.9	104.5	106.8	107.5	110.3	110.3	111.3	113.5	113.5
Management/Head of Institute	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Total

Job category	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Total employee category	317.1	302.8	286.7	287.9	296.8	314.0	315.0	323.0	327.0	328.0

7.1 Organization

DTU National Food Institute's strategy supports its ambition to be a leading institution with strong groups which are rooted in excellent research and contribute to teaching, advisory services, and innovation.

DTU National Food Institute consists of 14 research groups and three staff units: Academic Support, the Institute Secretariat, and the Service Unit (see Figure 5). On the research side, the organization promotes strong and focused research areas and interdisciplinary synergy between these. The academic and administrative support is anchored in the Institute's staff units, which contribute to ensuring the Institute's day-to-day operations and support the research groups in their focus on research, teaching, innovation, and advice. Academic Support handles tasks related to research support, study administration, scientific advice, quality assurance, and the working environment, while the Institute Secretariat assists with administrative system support, on and offboarding, management support and coordination in relation to buildings/premises, purchasing, IT, events, and communication.

Interdisciplinary coordination of research, teaching, advice, innovation, administration, and finance processes is embedded in the Institute's management

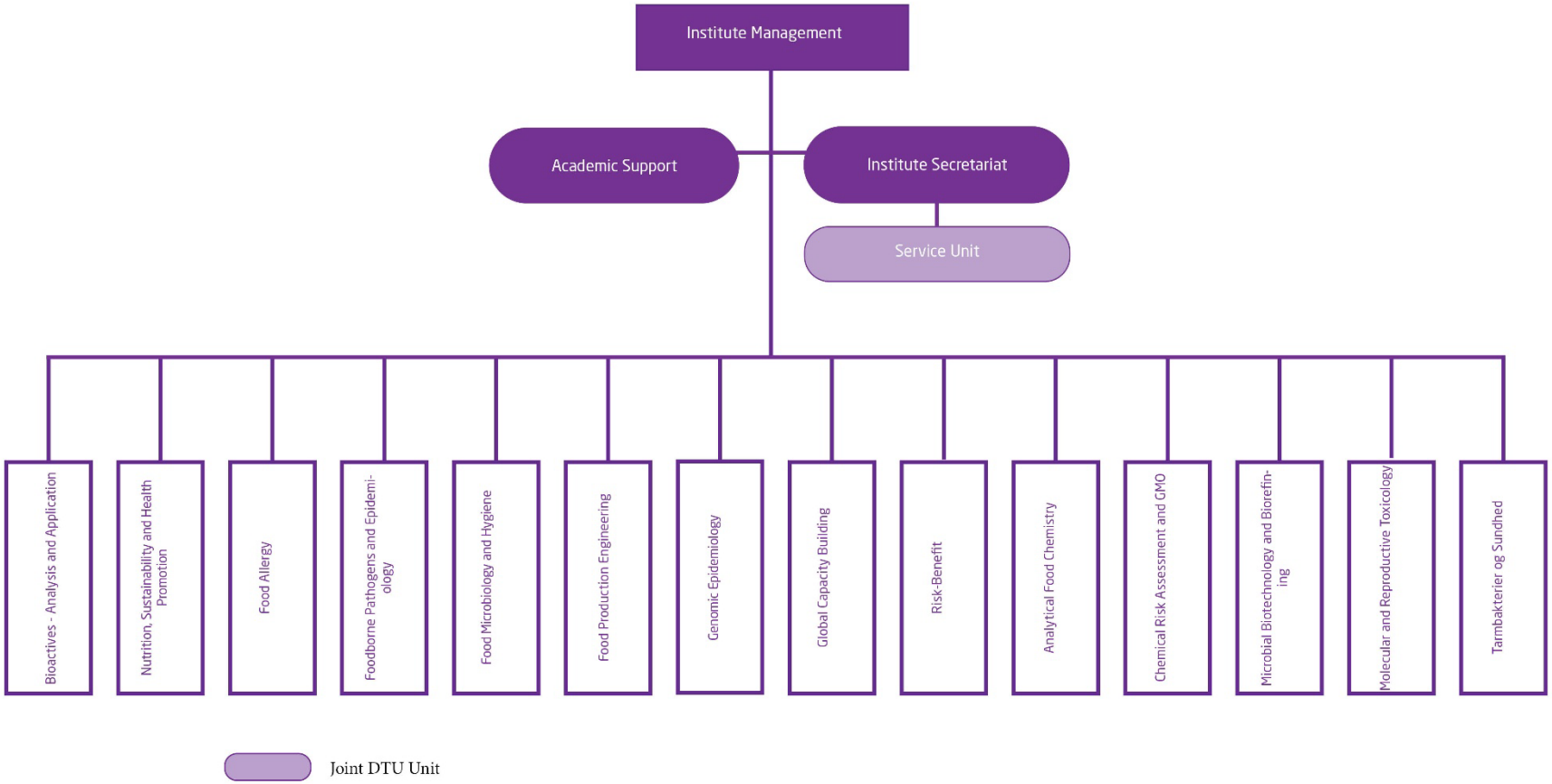


Figure 5. DTU National Food Institute's organization

The Institute generally maintains its focus on promoting collaboration internally by holding seminars and similar events which bring employees together across the board. For example, a research seminar in 2024 provided input on collaboration opportunities across the Institute, and well-being dialogues are also held cross borders.

7.2 Management and executive development

Focus will be on preparing the next international research evaluation in autumn 2025, and following up on this in the years afterwards.

Commitment and motivation are driven by academically exciting projects aimed at meeting some of the biggest societal challenges.
The work is meaningful and takes place in an environment in which individual employees are able to enter into a dialogue with management and are involved in the strategic work which is relevant to their day-to-day activities.

Following a reorganization in January 2022, the role of group leader has been strengthened such that research group leaders will fulfil the four management areas of the leadership role (defined in DTU's Leadership Foundation) to a greater extent. These are academic management, resource management, personnel management, and strategic management. The Institute will undertake regular joint leadership development activities based on the DTU leadership role. At the same time, the focus will be on administratively relieving the group leaders as much as possible via the Institute's staff units.

Inclusive and interdisciplinary leadership has a special focus, so that the Institute will be optimally equipped to maintain its leading position in innovation and research by bringing differences into play in an accommodating environment where there is room for new attitudes and ideas as well as for thinking differently. The Institute's managers are also on guard against biased assumptions that can affect how talents are spotted, assessed and developed.

Development of group leaders and Institute management is based on regular management and employee dialogues, including DTU well-being dialogues.

7.3 Employee and talent development

In future, all employees at DTU National Food Institute are to work even more together across disciplines and cultures to create an inspiring working life that leads to new knowledge. Employee development will therefore largely take place in interdisciplinary forums across research groups—based on good dialogue between the employee and manager.

In a work setting that nurtures growth, managers and employees alike work to ensure that each employee is thriving and constantly improving in their field, while also getting involved across groups.

With continued focus on essential criteria in research publications, attracting funding, providing original ideas, research/innovation at international level,

establishing national and international networks, and the ability to teach and communicate research and innovation, the Institute will continue the DTU Tenure Track work. It is also important that the results produced by the Institute's researchers and advisers are useful and beneficial to society in Denmark and globally. The aim is to deliver high quality while also creating societal impact.

In the coming UMV period, a key goal will be to offer ongoing continuing education to relevant employees in digitalization and the use of AI. These fields are central to all the Institute's core activities and employee groups. Ensuring generational change in the Faculty and developing lecturers' didactic methods will also continue to be a goal. In line with this, the Institute will ensure generational change within scientific advice and support and maintain the advisers' special ability to act with academic and professional competence, impartiality, and credibility in the intersection between research, advice, policy, and the exercise of authority.

7.4 Attracting and recruiting staff

In general, DTU National Food Institute will strive to attract the best talents in all job categories, with a focus on recruiting impartially and based on factors such as collaboration skills, diversity, and talent. The Institute believes that a diversity of perspectives and mindsets leads to more innovation better performing teams.

With the implementation of the Tenure Track programme and the Institute's visibility in the research world, the hope is also to attract international talents which the Institute can learn from. When recruiting international employees from high-risk countries, the Institute's managers are mindful of the risk of knowledge transfer (dual use).

The Institute is in the midst of generational change, which makes it necessary to ensure the timely transfer of knowledge to others in the coming years.

7.5 Working environment

Well-being and a good physical and mental working climate are everyone's responsibility. It is important to continue to ensure exciting and meaningful work, joint events and more social events, and good dialogue among employees and between employees and managers. This is supported by regular well-being and management dialogues, follow-up on the physical workplace assessment, an annual office inspection by the Institute's office ergonomics ambassadors, and the employee development interviews.

DTU National Food Institute supports flexible working life for employees in relation to working from home and a reduced environmental impact, considering duties and colleagues. The focus is on the employees' well-being and performance based on a differentiated approach, which takes into account that a number of tasks require presence on campus and use of colleagues as sounding boards. The challenge is to balance motivation and work performance while ensuring social cohesion at the Institute.

7.6 Diversity, equality, and inclusion (DE&I)

The Institute wishes to preserve a stimulating working environment with competent and helpful colleagues who support diversity, mutual respect, and recognition of each other as a natural part of their work culture. Everyone should continue to preserve openness and good dialogue.

The aim is to counteract silo formation in the Institute, in a building that does not automatically promote intermingling, and an organization where each research group also needs to be able to function both academically and socially.

During the induction of new employees, the immediate manager is responsible for introducing new employees to the organization in general, other groups, and potential internal partners. It is also important to encourage and prioritize participation in joint events and cross-cutting activities.

The Institute will use information screens as a tool to increase internal knowledge sharing about results and activities and to pass on information from management.

Table 7.6. Diversity, equality, and inclusion. Contact Michael Simonsen, AHR (micsim@dtu.dk)

DEI indicator	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Proportion of women in permanent research positions (%)		53.80	56.60	57.30	56.40	56.00	56.00	54.00	52.00	52.00
Proportion of men in permanent research positions (%)		46.20	43.40	42.70	43.60	44.00	44.00	46.00	48.00	48.00
Proportion of managers who are women. Covers people with employees who report to them (%)		50.80	50.80	52.60	51.70	52.00	52.00	52.00	52.00	52.00
Proportion of managers who are men. Covers people with employees who report to them (%)		49.20	49.20	47.40	48.30	48.00	48.00	48.00	48.00	48.00
Proportion of researchers (FTEs) with foreign citizenship (%)		31.20	34.20	35.60	36.90	37.00	38.00	38.00	39.00	39.00
Proportion of researchers (FTEs) with Danish citizenship (%)		68.80	65.80	64.40	63.10	63.00	62.00	62.00	61.00	61.00

8 Material resources

8.1 Research infrastructure and laboratories

DTU National Food Institute's research infrastructure has been developed to supply and maintain data about foods, health, and production processes, and it is a key hub for all activities, including participation in international partnerships, and attraction of researchers.

The Institute continually invests in research infrastructure, by replacing obsolete equipment and purchasing new equipment. The Institute is one of the partners behind the FOODHAY national research infrastructure platform, which has made extra investments possible and will contribute in the coming years to developing healthier and more sustainable food and reducing food waste in collaboration with food companies etc. Another focus area will be on the possibilities of sharing infrastructure at DTU and within the Institute, e.g. by using DTU's Equipment Information System (EIS).

The growth in research grants and number of project students requires investment in more and more new equipment. This creates the need for more specialist laboratories, and generally for more space for equipment and more people in the laboratories. In addition, several facilities must increasingly be open and presentable to external people, so that there is sufficient space to visit them and for external parties to have analyses and parts of their own projects performed via cooperation agreements. For example, it must be possible to make equipment purchased via FOODHAY available to companies and others in the event of unutilized capacity. The same will be expected among Eurotech partners. The specific needs are described under premises.

In addition, increased external funding is expected, especially regarding the green transition, which increases the need for investment in new equipment and thus laboratory facilities that can accommodate this.

8.2 Premises

In particular, the activities in the chemical and biotechnological laboratories in building 202 are cramped, not least because of the concentration of the activities resulting from the relocation from building 221. The Institute's food technology facilities for research and teaching in building 227 also need upgrading, and it might be an advantage to locate them closer to the other activities in building 202. The same is true of the experimental hall and facilities in building 222, where collaboration on scaling experiments elsewhere at DTU will be an advantage.

DTU National Food Institute also needs more space in the microbiological areas, but hopes to be able to find solutions when DTU Bioengineering vacates building 204. The Institute has taken over responsibility for a BSL3* classified laboratory in building 205B, where the facilities are expected to be available for use in early 2025 once they meet the requirements from the Centre for Biosecurity and Biopreparedness. The Institute is aware of a risk of 'dual use' in relation to these.

In addition, the Institute is working to create more space in its own areas for new freezers, so as to be able to store materials for new research trials and teaching purposes, research results from tests, and valuable collections such as strain collections and histology samples.

Finally, more project students, in particular, give rise to a general need for extra space in both the specialist laboratories—where students need to get their hands on advanced research equipment—and in the teaching laboratories.

DTU National Food Institute collaborates with Campus Service to find solutions to the most urgent needs, and it is expected to be possible longer term to expand the Institute's area in quadrant 2 to meet the increasing space requirements.

8.3 IT and GDPR

Much of the Institute's IT infrastructure is located in the laboratory environment, where research equipment generates large amounts of data.

The Institute's databases contain considerable research capital. It is therefore important to safeguard data management and accessibility at all times. The Institute collaborates with—among other partners—DTU Compute on databases for global monitoring of infections and antimicrobial resistance, as well as with the WHO and the European Food Safety Authority (EFSA) on dietary and food data, chemical and microbiological contamination, and sequence data for foodborne pathogenic microorganisms. The aim is to ensure better coherence between data across the Institute's disciplines and to increase digitalization by making more data available and visualizing them. The result will be increased utilization of data for the benefit of the Institute and other researchers as well as better presentation of data for the general public. The Institute also works to find the most suitable and secure infrastructure for collection, sharing, and quality assurance of data. DTU National Food Institute is participating in the CKAN project jointly with DTU BioSustain and DTU's IT Services. This aims to help achieve part of these goals, including a platform for compiling a data catalogue with integration of data management plans. Looking ahead, the strategy will also be supported through the Institute's contribution to EFSA initiatives focusing on digitalization and data sharing in the EU.

DTU National Food Institute works closely with DTU's IT Services and is supporting the IT4DTU project, with the expectation that it will create greater synergy across DTU with better communication paths, more business-oriented solutions, and better assistance with compliance in relation to information security, GDPR, and data management.

8.3 Resource consumption with care

A sustainable transition of society is central to DTU National Food Institute's research, teaching, scientific advice and innovation efforts, as stated in the previous sections.

To reduce the negative impact of travel activities on DTU's resource consumption, the Institute encourages participation in online meetings whenever possible and relevant, and events in the Institute are always either online or presentations are recorded that can be made available afterwards. It is also possible for employees to work from home by agreement with their immediate manager, taking tasks, well-being, colleagues, and students into consideration.

The Institute supports DTU's waste sorting policy, which is implemented throughout the Institute, and has a continuous focus on reducing energy consumption.

An energy-savings catalogue has been prepared as inspiration for energy savings in all groups, and energy ambassadors make a contribution particularly in the laboratory-intensive research groups. The Institute secretariat is also responsible for purchasing and ensuring telephones and IT equipment are recycled, and uses DTU's recycling scheme for furniture.

Table 8.4. Resource consumption

Resource indicator	Actual 2019	Actual 2020	Actual 2021	Actual 2022	Actual 2023	Budget 2024	Budget 2025	Budget 2026	Budget 2027	Budget 2028
Kilometres flown per FTE				6,258.8	4,131.3	5,000.0	5,000.0	4,500.0	4,000.0	4,000.0
The Institute's electricity consumption per FTE				6,283.0	7,207.0	7,000.0	6,800.0	6,600.0	6,600.0	6,400.0

9 Communication

The Institute's overall communication objective is to support DTU's basic narrative on the development of sustainable technology for people. The Institute will show nationally and internationally how especially the scientific advice and related research results make a difference by preventing disease and promoting health, producing more sustainable technological solutions, and developing new and improved foods for the growing world population—thereby contributing to meeting several of the UN Sustainable Development Goals.

Focus will therefore continue to be on news coverage and press work as well as dissemination and communication through the Institute's website, food.dtu.dk, and the Institute's Twitter, YouTube and LinkedIn profiles. The Institute would like to make more extensive use of video and image animations.

DTU National Food Institute has several special dissemination and communication obligations—for example in connection with the research infrastructure platform FOODHAY and cooperation agreement with Food & Bio Cluster Denmark—which includes conducting events and providing information about new knowledge of relevance to the food industry. The Institute also coordinates the continued communication of messages of importance to food safety and nutritional health in Denmark to the authorities and disseminates results of risk assessments and other news from the EFSA, which forms part of the task of being an EFSA cooperation centre in Denmark.

A separate communication objective is to contribute to the recruitment of students for the Master programme in Sustainable and Safe Food Production.

Another goal is to support internal communication at the Institute. This will especially be done via DTU Inside, which is the primary internal communication channel for essential employee information. The Institute will also begin using information screens as a new, culture-supporting communication channel.

10 Process and employee involvement

DTU National Food Institute's development goals and measures (UMV) have been prepared as part of a lengthy process, in which the Institute's employees have been involved in many ways.

In connection with the UMV process, all research groups have updated the strategy plans for their own group, including with descriptions of their strategic ambition and development to support DTU's strategy and the Institute's vision. All permanent researchers also attended a seminar to build a common understanding of challenges and opportunities, and desired scenarios for future research efforts.

The Institute's faculty and especially Heads of Studies, Chair of the Board of Studies, and pedagogical consultant have contributed to the preparation of Chapter 3 on study programmes, and the Institute's group leaders and advisers have also provided input on Chapter 4 on scientific advice. The employee side of the Collaboration Committee has provided input on Chapter 7 on human resources. The overall UMV has also been submitted to the Institute's Local Collaboration Committee and its Advisory Board for consultation.

A coordinator from the Institute's management has prepared the individual parts of the UMV, and the Institute's management has discussed the Institute's development goals and measures. The final draft of the overall UMV has been prepared by the Institute's secretariat and approved by Tine Rask Licht, Head of Institute.

Following the presentation of the UMV to the Executive Board of DTU, the Head of Institute will present an outline to the employees during autumn 2024, together with the action plan for 2025.