Collaborating on transitions

A knowledge agenda for The Hague University of Applied Sciences

THE HAGUE
UNIVERSITY OF
APPLIED SCIENCES


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CONTENT

INTRODUCTION

The Hague University of Applied Sciences holds a special place in society. We offer education and research at the heart of a city and a region with major social challenges. In our research and teaching, we have an important role to play: translating knowledge and expertise into practice. The Hague University of Applied Sciences can be of great social significance in doing so.

Why have a knowledge agenda?

In the strategic plan, we laid down the THUAS ambition for the coming years. Continuing to develop into a knowledge institute with a recognisable profile is at the heart of this ambition. A knowledge institute where research, education and external stakeholders work together to create social impact. The Hague University of Applied Sciences is already known for its large international, national and local network. Collaboration in our research takes place with companies, government agencies, healthcare providers and local implementing agencies. Research at The Hague University of Applied Sciences is shaped through a multidisciplinary approach to content, expertise and from different perspectives. So a lot is already being done, but to become a recognisable knowledge institute, an extra step is needed.

Through the knowledge agenda, we aim to *further increase our social impact as a knowledge institute* by:

1. strengthening collaboration in the education, research and society triangle;
2. deepening internal collaboration between faculties, centres of expertise and service departments;
3. raising the profile of The Hague University of Applied Sciences as a knowledge institute.

What themes?

To achieve this, we need more focus. We combine our energies on a limited number of themes. These themes are crystallisation points for collaboration. Centres of expertise, faculties, service departments and external stakeholders can seek each other out on these themes, and we want to make a visible impact on these themes as a university of applied sciences:

1. *just society*: collaborating on equal opportunities for a good life, health and education;
2. *transition to sustainability*: working on systemic transition to balance and sustainability;
3. *digital future*: digital technology for a just and sustainable society.

These themes were created through a participatory process. We built on the knowledge and expertise we have in-house. The leading lectors of the six centres of expertise took the lead and formulated choices in collaboration with the Executive Board and the directors' meeting. We deepened and validated the choices at a leadership conference. A draft version of this text was then shared with the directors' meeting, the Participation Councils and the Board of Trustees. Broad support emerged for the choices made and the approach, and we strengthened the text in response to constructive feedback.

In terms of content, the themes align with the content choices we have made in the past for our centres of expertise and our education. The intention is that everyone in The Hague University of Applied Sciences can contribute to realising the ambitions in this knowledge agenda.

Through these three themes, we are building on what we are already good at and focusing on important developments in society. On the one hand, they are of course universal themes that are also reflected in the agendas of other knowledge institutes. The Centers of Expertise are constantly looking for opportunities to connect with external agendas and projects. Because getting funds is a standard requirement of every Centers of Expertise and research group. The choice of these themes should ensure that we connect even better with external fields. For this, the strategic agendas of other (semi)public and private institutions are crucial. As SIA also describes in its strategy, besides the more usual partners such as knowledge institutions, companies and ministries, regional governments and civic organizations also participate in realizing social breakthroughs in these themes. In creating the themes, the main external agendas were also explicitly considered. These include the Multi-Year Mission Driven Innovation Programs (MMIP) of the RVO, coalition agreements and growth agendas of municipalities and provinces, and the Knowledge and Innovation Agendas (KIAs) of SIA.

With three themes, we support better opportunities to connect to these, but at the same time we see the opportunity to add our signature as THUAS. On the other hand, we see an opportunity to put our own spin on these three themes. We are distinctive in what we do in terms of research on these themes, and consciously choose to link these three themes to add social value.

The fact that the themes are distinctive, but at the same time interface with goals of institutions such as the NWO, SIA and the Vereniging Hogescholen (VH) makes it possible to strengthen the relationship with research policy without losing our profile. For example, the VH calls for research that connects to regional, national and international issues alike. Our agenda embraces this and specifies for each theme how that connection will be achieved. The VH has also formulated 12 themes of its own. Our three themes bring these together and even take them a step further. Consider theme 3 of the MA "resilient society", which for us is part of just society but connects to theme 1 "health and well-being".

The choices for these themes are not free of values. As a university of applied sciences, we choose justice and sustainability as values, and we want to use digital technology explicitly for an economy that is virtuous. These values guide our actions as employees at the university of applied sciences and we impart these values to our students as well. That includes the ability to make the difficult trade-offs that come with these values. Does the contribution of economic growth for quality of opportunity outweigh the damage to sustainability caused by that same growth? Do the opportunities of artificial intelligence outweigh the risks? These are questions to which there are no clear-cut answers. We want to train professionals - and support existing professionals - to make those trade-offs wisely.

How will we use the themes?

The themes were selected to release energy and creativity and create opportunities for multidisciplinary collaboration. The chosen themes meet a number of important preconditions. For example, relevant external research, knowledge and innovation agendas have been taken into account. We also build on choices made earlier by The Hague University of Applied Sciences, for example in the strategic plan and the long-term plans of the centres of expertise. This means, on the one hand, that the themes are in line with what is already happening while also encouraging innovation. Finally, the sum of the themes must have impact at local, regional, national and international levels.

The choice of these themes means that these will take centre stage within THUAS in terms of content in the coming years. We will structurally invest in programmes, projects and initiatives around these themes, always in the triangle of education, research and the outside world. But just as importantly, all research groups and degree

programmes should start thinking about how they relate to these themes. For a research group like Public Governance, this could be the role of digital technology in public administration, the governance of the energy transition or the question of how the government can ensure greater equality of opportunity. For a degree programme like Finance & Control, this could mean a focus on the role of AI in financial management, making businesses sustainable or socially responsible business. Of course, several themes can also be covered at the same time. As to how each faculty and centre of expertise, degree programme and research group relates to these themes, we are going to approach each other; informally in substantive discussions, but also formally in management reports and in THUAS dialogue.

The Hague University of Applied Sciences is a broad university of applied sciences with more than 100 degree programmes and 38 research groups. The knowledge agenda will guide the portfolios of our degree programmes and research groups in the coming years. At the same time, strength also lies precisely in this breadth of the university of applied sciences: the ability to address many different social questions in education and research, as well as the opportunity to allow what is currently a minor theme to develop into a new strategic theme in the coming years. This means that there remains room for education and research not directly linked to a theme. In doing so, we apply the '*apply or explain*' principle. Education and research that is not linked to a theme will have to explain why it cannot be linked and why it is nevertheless important to invest in it.
The themes are broad, but collaboration between education, research and society always takes place in the form of concrete projects and initiatives. You can find concrete examples of how this takes shape in the detailed description of the three themes. The knowledge agenda continues to develop through this collaboration. We will encounter new challenges and problems, new perspectives and new solutions. The knowledge agenda is not static but is a living document.

KNOWLEDGE AGENDA: TRANSITIONS AROUND THREE THEMES

We live in a time of great opportunities as well as grave threats. Never before has the world been so rich. Never before has a smaller percentage of the world's population lived in absolute poverty. Never before have so many children had the opportunity to attend education and never before has the life expectancy been so high (even in low-wage countries). Never before has technological development and especially the development of digital technology been so rapid. A development that entails unprecedented opportunities for innovation and solving previously seemingly insurmountable problems. At the same time, the world is fundamentally unjust and unsustainable. While income inequality between countries has decreased, inequality within countries has increased. In the Netherlands, too, there is a growing group of people who do not share in prosperity, who have fewer opportunities for work, housing, education and health. Moreover, one downside of increased prosperity is the way we produce it. We deplete nature. We pollute our planet in various ways and we do not treat people sustainably either. Technology with all its opportunities is also a threat. Rapid developments in digital technology come with risks such as new forms of crime, invasion of privacy and excessive control mechanisms.

As a society, we face the important question of how to capitalise on the opportunities of these times and meet the challenges. In recent years, it has become increasingly clear that step-by-step gradual change is not enough for that. What is needed are a number of transitions, fundamental changes in the culture, structure and way of working of our society and our organisations. Transitions are complex and time-consuming. Those who want to contribute to transitions need to make clear choices and be in for the long haul. As The Hague University of Applied Sciences, we choose to focus on three themes:

1. *just society*: collaborating on equal opportunities for a good life, health and education;
2. *transition to sustainability*: working on systemic transition to balance and sustainability;
3. *digital future*: digital technology for a just and sustainable society.

These themes are not separate. For example, the effects of global warming hit the world's weakest the hardest, but conversely, global inequality contributes to the continuation of unsustainable modes of production. Digital technology has huge potential to make the world more sustainable, but the server farms it requires also require massive amounts of energy. Digital technology gives more people than ever before access to information and a chance to make their voices heard, but there is also a digital divide, as highly educated people are better able to use digital technology productively. The overarching question of this knowledge agenda is therefore:

What transitions are needed to achieve a just and sustainable society in a world rapidly changing due to digital technology?

In other words, the themes require an integrated approach and reinforcement through collaboration within The Hague University of Applied Sciences. A just society grows by strengthening citizens' governance, also in terms of their digital activities and experiences. The just use of data and digital technology can help us strengthen society and find (more) sustainable solutions for production and energy consumption (faster). Our sustainability research is going to contribute to reducing energy poverty and the social impact of climate issues.

The need to make changes in many areas at the same time also links the themes. If transitions are to be achieved, technological, economic, governance and social adjustments are needed simultaneously. The complexity of how these different areas interact is great and we often do not know enough about which interventions work.
In our practice-oriented research in close collaboration with the field of education and professionals working on these themes, we look for solutions together. We develop and test practical interventions and helpful insights.

We work on education that provides professionals with the necessary knowledge and skills. And we walk hand-in-hand with practice, and are therefore close to the implementation of developed knowledge.

1 Theme: just society

Collaborating on equal opportunities for a good life, health and education

The Hague University of Applied Sciences is located in a region where many people are struggling. The city of The Hague, for example, is the most segregated city in the Netherlands. Residents in our immediate area struggle with poverty, health, exclusion and safety issues, while access to the social domain and health care is limited. One in five people live below the poverty line. There is a large group of people who are out of the labour market, or in poorly paid jobs. Urgent other concerns, debt for example, obstruct the path to a healthy lifestyle. And those same people are at an increased risk of health problems, and have less access to care and support. Access to quality education, potentially an important measure for more equal opportunities for future generations, is also not evenly distributed. All this in one of the richest countries in the world.

The Hague University of Applied Sciences has an important contribution to make here. Through our education, we offer opportunities to all our students. Our practice-based research contributes to insights into issues of equality of opportunity. As a large organisation, we ourselves can contribute directly to equality of opportunity through our HRM policies and procurement. By strengthening the collaboration between education, research, services and the outside world, we further increase that impact. We will make an even greater contribution to the equality of opportunity in our education. We contribute to the equality of opportunity for health in our urban environment. We are developing ways to give all citizens a voice in municipal policies. And we design new ways of collaborating between officials, professionals and residents.

Outlook

We want to contribute to a just society. To do so, we build on our existing external networks, which we continue to develop into partnerships. As The Hague University of Applied Sciences, we want to maintain a presence through our education and research at the heart of the city, where professionals and citizens in the neighbourhood work on equality of opportunity. In addition, on the administrative level, we want to cooperate more intensively with the municipal executive, healthcare institutions, housing associations, educational institutions and other civic organisations to maximise the impact of our activities. As centres of expertise, we develop in-depth knowledge and understanding of the issues underlying poverty, health inequality and other forms of inequality (in our region and our educational institution). We develop these insights together with our stakeholders and together with lecturers and students from the perspective of education. We do action research where our students contribute directly to projects in the neighbourhood. Together with our stakeholders, we develop a common research and impact agenda that we also jointly fund, allowing us to work on projects in a long-term, focused and well-aligned way.

Theme description

'Just society' is about creating equal opportunities for all in a society at risk of becoming increasingly unequal. This is no easy task. The Sociaal Cultureel Planbureau (SCP; the Netherlands Institute for Social Research) shows that inequality in the Netherlands is extensive, persistent and runs deep. There are big differences between people in:

- education, employment, income and (economic) capital;
- the social networks they can draw on (social capital);
- their knowledge of social codes and their ability to deal with them (cultural capital);
- their physical and mental state and attractiveness (personal capital).

Moreover, these different forms of capital are closely related. The SCP considers the Netherlands to be a class-based society, with lower amounts of capital strongly correlated with lower well-being and poorer health, less hope for progress and less trust in the government.

Addressing this inequality is a complex task. Despite all kinds of policies, the SCP sees little change in the situation between 2014 and 2023. We see (urban) governments struggling to develop policy interventions that work. We want to actively contribute to successful solutions through a deeper understanding of metropolitan issues, but also more directly, by conducting action research. The accumulation of problems in individuals and families poses a challenge for the government, as well as the fact that there are often separate arrangements for each problem. People who are already vulnerable and experience language problems, for example, get caught up in a maze of schemes and implementing agencies. We want to contribute to government agencies that want to help. We know this places high demands on hierarchical organisations, with defined silos and professionals with different perspectives. How do we organise schools, healthcare organisations and governments, as well as sports organisations and community initiatives in such a way that collaboration across the boundaries of departments, organisations and professions improves?

Increasing the equality of opportunity requires a broad view with an eye for the connection between different issues. In the health domain, as a university of applied sciences, we have accumulated experience and knowledge. A concept such as 'positive health' emphasises the connection between physical and mental health and broader issues such as quality of life, social environment and participation. From various research groups, we investigate how the physical design of the city can take more account of issues such as health, sports and exercise, and loneliness. In collaboration with healthcare organisations, city residents, the municipal executive and our fellow knowledge and training institutions, we also work to improve access to resources for development and basic care and support for citizens of the city. Education plays an important role in providing equality of opportunity for marginalised groups in our society. But for this to happen, the education system must be set up properly, otherwise the education as a system can actually perpetuate or reinforce inequality. We want to contribute to equal opportunities for good education. We do this by exposing and countering unconscious prejudices about gender, socio-economic status (SES) and ethnicity - starting with The Hague University of Applied Sciences. By showing how selection processes may confirm biases. By understanding how existing cultural norms and expectations favour certain groups of students and disadvantage others. By contributing to curricula that also reflect the experiences and perspectives of marginalised groups and not just those of the dominant culture. Here, it is important that learning is not something that happens only inside the walls of the school complex, but also outside of it. This certainly applies to the education of young people and adults in vulnerable and marginalised positions, such as undocumented youth, school dropouts and adults such as sex workers. Promoting equality of opportunity in education therefore requires a layered approach, from data and learning analytics, an inclusive and participatory approach, to using mediation to resolve conflicts by restoring relationships. This also calls for the transformation of systems that perpetuate such inequality.

In doing so, it is important not only to talk about students, citizens and professionals, but also to stand shoulder to shoulder and work together. In such a way that everyone contributes their (experiential) knowledge and everyone can participate on an equal footing. The Hague University of Applied Sciences has a tradition when it comes to a neighbourhood-based approach, a level at which it is possible to see the whole individual or family and their social context and from there contribute to solutions for just living conditions, health, well-being and education. We do this in practice-oriented research, aimed at solving concrete problems. In an intensive way, we do this in city labs and field labs, where we collaborate with a diverse group of citizens and professionals on complex issues for longer periods of time. In learning and knowledge networks, we develop knowledge together with partners and collaborate on long-term knowledge development.

What are we doing and what are we developing?

Locally

Within the Haags Sportkwartier (the Hague Sports Quarter), The Hague University of Applied Sciences has been working closely with the municipal executive, schools, welfare and health institutions and sports organisations since 2019 to help residents
in Escamp with their demand for sports and exercise. Through participatory research, we investigate where needs lie and what obstacles citizens face. Together, we discover where opportunities arise and what is needed to understand those opportunities. In that process, we identify the added value of sports and physical activity for citizens in terms of development opportunities and opportunities to meet and connect (growth of personal, social and cultural capital).

In the research programme 'De Staat van De Haagse' (The State of THUAS), The Hague University of Applied Sciences conducts a statistical study on equality of opportunity of students from the region at the intake of the university of applied sciences, their chances of good study progression and graduation, and their chances on the labour market or in a follow-up degree programme. Degree programmes can use these analyses to improve their educational policies or education. In that way, a degree programme with an overview of intake development over the past 10 years can extract possible areas of improvement from it to keep the programme relevant. Or we demonstrate the impact of a change in the curriculum on the composition of the new intake and the effectiveness of this change. And with partners such as the Centraal Bureau voor de Statistiek (CBS; Statistics Netherlands), we can, for example, analyse the success graduates have in the labour market.

Any bottlenecks in the student journey are identified in this way, which degree programmes can in turn use to remove them. In the 'Sociale innovatie in de stad en wijk' (Social innovation in the city and neighbourhood) minor, students study complex urban issues including the housing shortage, youth unemployment, liveability, civic participation, space and behaviour, and crime. Students develop solutions and initiatives that enable citizens, governments and businesses to work together to strengthen the city. In this minor, collaboration takes place with a network of more than 20 practice partners, ranging from municipal executives, research groups, centres of expertise, neighbourhood organisations, resident groups, consultancies and many others.

Under the participation research agenda, we are setting up a jointly funded, long-term research agenda with the municipal executive around the topic of participation, to take existing collaboration to the next level. The agenda focuses on learning questions such as: how do we increase citizens' social and political involvement, and how do we strengthen collaboration between the municipal executive, residents, professionals and other stakeholders? A key goal is to deploy students more often and in a more targeted way. We are keen to collaborate with degree programmes to get students working on the issues the Haaglanden region is struggling with.

We are developing a similar way of working together with the migration research agenda. Together with the city of The Hague, a joint research and policy agenda focusing on three groups is being developed for a three-year period: Ukrainian displaced persons, migrant workers and holders of residence permits/asylum seekers. The agenda focuses on the position these groups hold in society. Separate research agendas will be developed for the three groups - with those directly involved from the municipal executive - but the sharing of knowledge will take place between the different policy fields. The outcomes are used to adjust or tighten municipal policies where necessary. The themes we will focus on are: housing, education, language, civic integration, health, work and income, and participation. The further detailing of these themes will be done in collaboration with the municipal executive and stakeholders.

Regionally

Within the Academische Werkplaats Hulpmiddelen (Academic Resource Workshop), we are working with a collective of local advocates, healthcare organisations and SMEs to improve the quality, effectiveness and efficiency of healthcare resource use in the home. We do this by building a strong network and a regional, strategic agenda, joint research, implementation of improvements in practice and knowledge sharing, education and training at all levels. The focus is on resources for self-care and general daily necessities, mobility and cognitive support. This with the ultimate goal of a continuous process of evaluation and improvement, and more and better use of resources at home.

The 'De burgerschapsopdracht binnen en buiten school: participatief en inclusief' ('The citizenship mission inside and outside of school: participatory and inclusive') research project develops knowledge about the legal citizenship mission of primary and secondary education and the meaning of citizenship education for (vulnerable) young people in (vulnerable) neighbourhoods. A participatory and inclusive approach underpins this development. In the project, students and young people have a say in how this new citizenship mission and citizenship education is shaped. Participatory and inclusive approaches are explored in urban labs. We also integrate aspects of research on *peer mediation* and *pedagogy of discomfort*.

Making society more sustainable requires a broad approach. The key challenge the energy transition poses lies not in the technology, but the social side of the transition. This is especially true for residents in vulnerable neighbourhoods. Energy transition is often not a high priority for these residents. Distrust of the government is more common and residents have limited financial room to invest. To achieve a just energy transition, the involvement of residents in vulnerable neighbourhoods in the implementation of the energy transition is very important. In light of this, we will be implementing two pilot projects, which will approach energy transition from a broad technical, social and participatory approach.

Nationally

In the 'Tegengaan van syndemische kwetsbaarheid: een gemeenschapsaanpak gericht op veerkracht' ('Countering syndemic vulnerability: a community-based approach focused on resilience') project, we aim to understand and improve the health of those in a lower socio-economic position. A resilience methodology is being developed in co-creation with neighbourhoods and citizens to address the structural mechanisms that lead to the socio-economic clustering of health problems in a neighbourhood or community. The result of the project should be a detailed protocol, so that other districts can then also implement this method. This project is part of the National Science Agenda. It is also a collaboration with regional municipal health services, the municipal executives of The Hague and Leiden, insurers Menzis and Zorg en Zekerheid, welfare organisations and international partners.

In the 'Voortijdige schoolverlaters' ('School Dropouts') project, we work with a broad consortium of senior secondary vocational schools, municipal executives and civic organisations to work with school dropouts in an action research project in which these young people investigate dropout history and return to education, internships and work. This means this research emphasises achieving equal educational opportunities for all students through a student-led approach, in which diversity and inclusive participation are principles rather than side issues. As a result, students' backgrounds, needs and aspirations are central to the way education is organised by a diverse constellation of pedagogical partners, ensuring that all efforts are focused on eliminating inequalities between students. Exploring how these young people (truants and dropouts) can be supported in taking the lead in designing and implementing their own educational pathways to a meaningful future opens up vocational education and makes it more flexible and adaptable.

In the 'AI en Jeugdhulp' ('AI and Youth Aid') project, we tie in with the national 'Hervormingsagenda Jeugd' ('Youth Reform Agenda'), where stakeholders in youth services have agreed to maintain and preferably strengthen support for vulnerable youth and families in the coming years. The youth services sector simultaneously faces issues on the topics of financial manageability and staff shortages. At the intersection of the research themes of justice and digital future, we aim to arrive at a research and innovation agenda around digital innovation in youth services. The ultimate goal of this agenda is to be more efficient in the youth services in terms of financial and human resources, to maintain support for vulnerable youth and parents.

Internationally

Europe stands for equality, tolerance and social justice and works to implement these values through legislation, policies and strategies. The theme of just society aligns well with the European Commission's current priorities, which also emphasise a fair transition to a circular economy. The social dimension in the economy is given more attention, to ensure a decent standard of living for all, regardless of the place of employment. Emphasis is placed on access to the most basic rights, such as healthcare and education for every child. It also fights youth unemployment. The EC aims to remove obstacles in education and improve access to quality education. Social justice and prosperity for all come first as we build an economy that works *for* people.

International collaboration takes place at various levels within the centres of expertise. Strategic positions have been filled and there is experience in requesting and conducting international studies. We see international collaboration as important, because inequality and injustice are not just national problems. Joining forces would be beneficial on all fronts, enabling us to learn from each other instead of reinventing the wheel. Within the just society theme, we will align with Europe by working together in consortia of like-minded people, improving our research and accelerating the realisation of the joint goals of Europe and The Hague.

How do we continue to develop?

The above projects are examples of the ways we will contribute to justice as a university of applied sciences. By choosing the theme of 'just society', we create a unifying element in the university of applied sciences across degree programmes and research groups. In the examples above, all projects can make more impact if we collaborate on them as education and research. This theme is an important guiding principle in the selection of new research groups, new degree programmes, but also in decisions on operations and external collaboration. Externally, by choosing this theme, we show our commitment to it. It is an invitation to external parties who want to collaborate with us on long-term research agendas and projects. This profiling theme is not a blueprint for the future. By building on where our strengths lie and branding ourselves accordingly internally and externally, we create opportunities for collaboration and the emergence of creative energy.

2 Theme: transition to sustainability

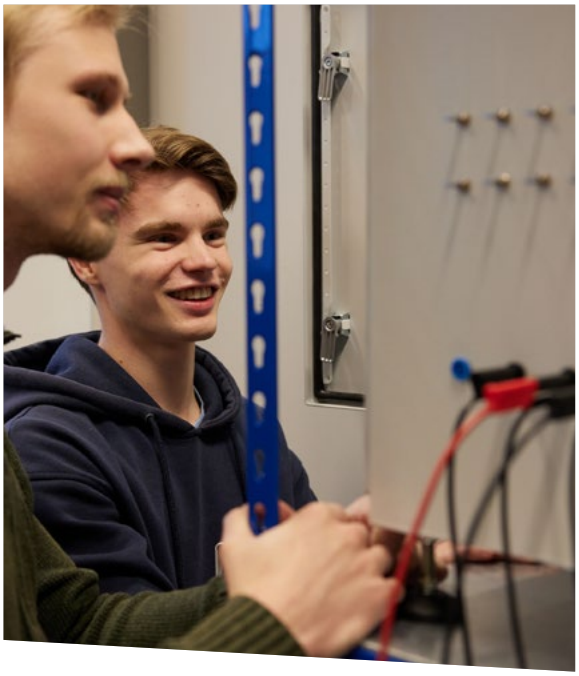
Working on systemic transition towards balance and sustainability

It has been clear for decades that our way of life is not sustainable. There is a recurring theme in the 1972 Club of Rome report, the 1987 Brundtland report and the IPCC reports. The recurring message is that the way we live, the way we produce and consume and the way we distribute wealth is not in balance with our ecosystem and with our planet. Climate change, pollution in its broadest sense (plastic, nitrogen, but also light and noise) and the destruction of nature have a huge impact on the world around us. In all this, socio-economically poorer countries, areas and people are hit hardest.

Despite all the reports and protests, measures to achieve sustainability are disproportionate to the growing scale of the problem. In its latest report, the IPCC concludes that the chances of securing a liveable and sustainable future for all are rapidly diminishing. In other words, achieving sustainability requires a political, social, economic and technical transition in the short term, preferably coordinated internationally. This is complex but, at the same time, the COVID-19 pandemic showed that we are indeed capable of effective action and collaboration.

As The Hague University of Applied Sciences, we want to contribute to that transition. Within the transition to sustainability theme, we contribute to the fundamental transitions in businesses, governments, education and citizens needed to achieve sustainability. The aim is a society where the use of energy, raw materials and labour is balanced and where benefits and burdens are shared fairly. This is a three-level ambition:

1. The university of applied sciences itself contributes directly to sustainability in its operations, education and research.
2. In our region, we contribute to broadening and accelerating sustainability through practical research, together with regional partners and education.
3. Nationally and internationally, we contribute to the fundamental transitions needed for sustainability through our insights and the professionals we provide.



Outlook

We want to be pioneers of a sustainable region with national and international appeal. Our goal is to co-create a thriving ecological, economic, social and political-legal system. This system must be balanced, not only for current generations - including young people and citizens in vulnerable positions - but also for generations to come. We aim to make a substantial contribution to sustainability by developing innovative interventions in contribution with businesses, governments, education and citizens of all ages. In short, we are contributing to a transformation towards sustainability.

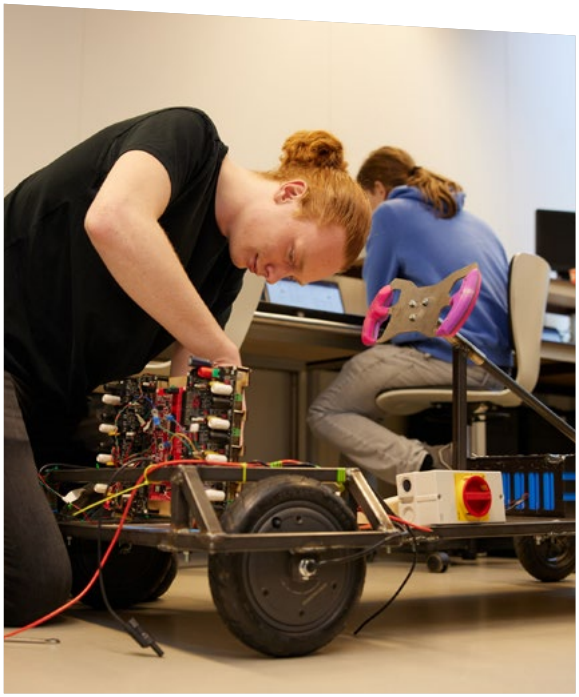
To this end, we further expand our regional and national network through strategic partnerships with companies, municipalities and other civic organisations. Within The Hague University of Applied Sciences, we work intensively with education. Our education will be needed for the provision of professionals, with the knowledge and skills to shape a transition to sustainability.

Theme description

A transition to sustainability means moving towards restoring balance at the system level. This requires a perspective that does not focus on the individual but looks at the sustainability of the whole system. This is about which raw materials we extract from nature in a sustainable way, but also how we organise society so that we treat people sustainably.

For the time being, the use of raw materials is characterised by their mostly linear nature with the steps being: extraction, processing, use, disposal. Raw materials are seen as waste after use and not as raw materials to be reused. We see this in the use of oil, minerals, fertile soil, wood and crops, for example. In the process, emissions such as landfills or waste incineration, CO_2-emissions, nitrogen emissions and particulate matter have often become problematic. We often treat raw materials carelessly and find that this is no longer possible. If we look at the fashion industry or healthcare, for example, the system is set up to create a mountain of waste. We need to move towards circular use rather than linear use, where we keep raw materials in a closed loop as much as possible. That means: product life extension, substitution, consuming less, etc.

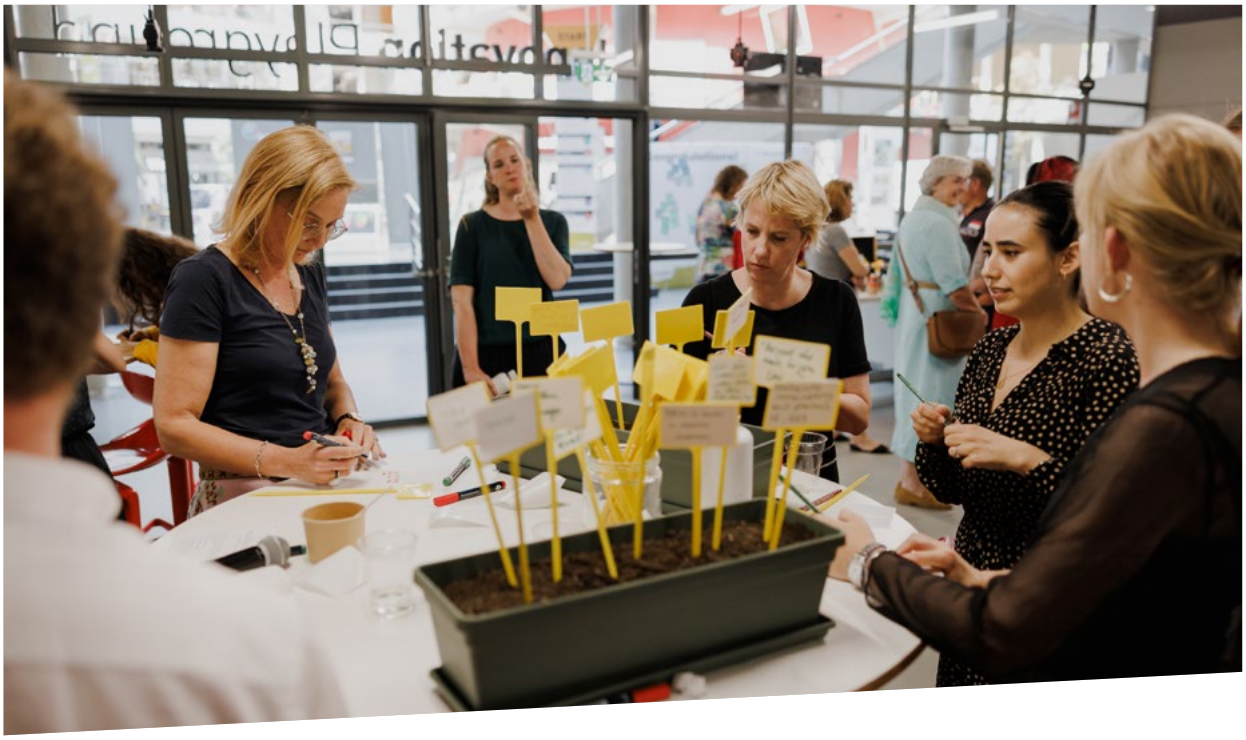
The huge use of energy we generate with fossil fuels results in CO_2-emissions and a greenhouse effect, with climate change as a result. In turn, the greenhouse effect triggers processes that lead to an acceleration of climate change. For example, the hitherto permanently frozen tundra is melting, resulting in the Earth reflecting less solar radiation at those locations and thus warming more strongly, and also in the release of methane, a 40- to 70-fold stronger greenhouse gas than CO_2, from the tundra's plant material.



The way people interact with each other is also unsustainable. Exclusion, wide disparities between rich and poor, and international contradictions create a world that is unsustainable. Climate change exacerbates this. Around the world, it puts vulnerable countries and populations in even more vulnerable positions. As a result, human rights, including children's rights, are increasingly under pressure. It is important to also allow these groups including young people to participate (take part, have a say and co-decide) so that the fundamental transitions are also inclusive. We also need to pay attention to nature and animals and how the legal system can protect them. We must ensure that their intrinsic value is seen.

Education can make an important contribution to these issues. Especially also because various studies show that matters like climate issues have a major negative impact on the well-being of young people. In this context, 'regenerative education' is important. Education that makes a positive sustainable contribution to the world. It is the role of our vocational education to equip students to help solve problems. As a UNESCO university of applied sciences, we work with the SDGs in education in this regard.

Research and education mostly take place in our living labs and learning communities. We work on solutions with stakeholders, students/education and research together. That is the crux of our THUAS approach. Through ecological forms of education - such as working with living labs - where different actors learn in unison with a shared intention to move systems towards balance between people, people and the planet, and people and not-people, we can make a difference in the big issues society faces. So in a living lab, we work with stakeholders on the experiment. This is in contrast to classical experimentation, in which we exclude the influence of the environment. In living labs, we take a systemic approach (such as SPRONG Systemic Co-Design), addressing total problems. This is because we do not want to run the risk of problems shifting (waterbed issue) or creating new problems through sub-optimisation. Consider, for example, the transition to solar energy, very good in terms of the source, but if we don't think about the end-of-life management of the panels (linear use versus circular use) now, we're only creating new problems.



What are we doing and what are we developing?

Locally

Practice-oriented research on sustainability means not just writing reports, but above all taking action. By working together as much as possible and showing how we are making strides and achieving results together in the focus areas. The Hague University of Applied Sciences' housing approach forms one example, working on governance (Paris Proof directive), technology (renewable resources for THUAS), with a multiple business case. For campus development around this issue, civic participation of local residents is also crucial. We do this with students, in research, together with all stakeholders. In doing so, we are working to reduce the CO_2 emissions and energy consumption of The Hague University of Applied Sciences. With this approach, we are giving substance to the various SDGs.

In the Co-Creation research group, pedagogical partnerships are established between students, lecturers, managers and the field, with the aim of solving a practical problem on the basis of equality. In the future, we want to extend this to developing education on sustainability in all faculty curricula. We explore the meaning of sustainability in the professional context and develop education that bridges the gap to its meaning outside the professional context, e.g. for citizens. In addition, we aim to set up and develop this in collaboration with the field of senior secondary vocational education. In primary and secondary education, we integrate sustainability and citizenship and initiate projects in which students, parents and teachers work together in neighbourhoods on local solutions to sustainability issues arising in the neighbourhood. To achieve this, we are strengthening collaboration with the municipal executive of The Hague. We also want to realise student-driven research centres in which students set the research agenda and collaborate with lecturers and the field.

In the 'Kinderrechten: praktische uitdagingen' (Children's Rights: practical challenges) minor, Law (Higher Professional Education) students and Social Work and Education students learn to weigh the best interests of the child (0-18). The theme of climate and children's rights is part of this minor.

Regionally

NEWRAIL is an example of a project in which students, lecturers, researchers and community partners have worked together on content in an integrated way. The multidisciplinary approach was one of its success factors. NEWRAIL's project topic is the installation of solar panels on a noise barrier along the railway. ProRail wants to lease square metres of noise barrier to an energy corporation, perhaps hoping to gain more support for installing noise barriers. An energy corporation is to rent the square metres of noise barrier from ProRail, install solar panels on them and sell the energy generated by the solar panels. The first pilot took place in the district of America in the municipality of Horst aan de Maas, in Limburg. By giving local residents an active role in the project, we helped create as much support as possible for the final solution.

We investigated the correct placement of the panels with as little reflection on the houses as possible while maximising the yield. We also explored other ways to create value, through payback schemes and other business cases. This required a well-facilitated, iterative approach from the parties involved, where precise end goals could not be formulated in advance. We had to start with estimated intermediate goals and thus grow iteratively towards a final goal that suits all parties best. The project was set up by ProRail in collaboration with the Mission Zero (MZ) centre of expertise. MZ broadened the design of the project much more than initially envisaged by ProRail. That set-up is now proving more important than ever, as civic participation and co-creation proved crucial. Originally, these had received too little attention. The knowledge from the project flows into education in various ways. This included a lecture on energy production with solar panels, and the development of a model for further research. This model was developed by a group of students and is now being further developed by a lecturer and a student intern together. Recently, the NEWRAIL project has become one of the OECD's international cases.

The Greening Cities and Ports theme group is a graduation group in which European Studies students conduct research commissioned by the Changing Role of Europe research group in collaboration with local stakeholders. Examples of such stakeholders include the Municipality of The Hague, the European Urban Knowledge Network (EUKN) based at The Hague Humanity Hub, the Mission Zero centre of expertise (containing the Sustainable Construction research group) and Cruise Lines International Association (CLIA). Students engage with these clients to conduct research with impact. This always results in a report (with a presentation being optional) for the client and a graduation research project for the degree programme.

Going forward, we will launch a project on climate change and participation of young people and citizens in vulnerable positions, and the impact of this climate change on their lives and health. To this end, we are developing new forms of participation to increase their voice and decision-making power.

Nationally

Implementing sustainability requires a process-driven, total-systems approach. This also fits with the much-cited systems approach and system transition needed. Working with learning communities such as living labs is increasingly seen as a way to achieve sustainable transitions with different perspectives and with different stakeholders, including in education. We are also affiliated to the national Learning Communities network for this purpose (Kerngroep Netwerk Learning Communities). But other forms of learning that have a multidisciplinary approach are also used in research. Our studies also take place in collaboration with universities and with the senior secondary vocational education sector.

Collaborating in learning communities across organisational boundaries is no easy task and does not effortlessly lead to results. The Energy Transition: Talent in Learning Communities project funded by the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO; the Dutch Research Council) explores along the value chains of solar, wind and hydrogen how to set up these learning communities so that participants develop their talents and what value is created in that process at different levels. In the NWO TransAct project, we are using a new approach to establish a broad learning community, aiming to make the shift from lobby communities to learning communities. Lobby communities are communities in which parties primarily seek to secure their corporate interests. This situation calls for a radically different approach.

In the National Learning Community System Integration funded by the Rijksdienst voor Ondernemend Nederland (RVO; the Netherlands Enterprise Agency), we are working on system integration for the energy transition through four national regions and in collaboration with regional stakeholders in those regions. The Hague University of Applied Sciences is spearheading the South Holland region in this respect. This Learning Community System Integration grew out of the work of the Lectorenplatform Energievoorziening in Evenwicht (LEVE; Energy Supply in Balance Lectors' Platform), in which The Hague University of Applied Sciences also participates. A learning community specifically focused on systems integration is particularly important, because there is still a lot to be gained by working more with systems integration. Systems integration usually falls between the cracks because it is the focus of only few parties.

Internationally

In the Jeugd, vrede en recht (Youth, Peace and Justice), project: SDG16 en Europees klimaatbeleid (Youth, peace and justice: SDG16 and European Climate Policy) project, 35 students from the programme International Public Policy and Leadership go into the neighborhoods of The Hague (Schilderswijk and Moerwijk) to talk to young people about Sustainable Development Goal 16 (Peace, justice and strong public institutions) and the European climate goals. They do this in collaboration with five different community centres and conduct interviews using the Q methodology, which requires young people to rank statements by importance. Half of the students interviewed policymakers from the Ministry of Foreign Affairs, international institutions and the municipal executive of The Hague using this method. The results will be compared among themselves by the research team of the Changing Role of Europe research group. The project is part of the Nationale Wetenschapsagenda (NWA; National Science Agenda) route 'Tussen conflict en coöperatie' (Between Conflict and collaboration).

How do we continue to develop?

In the 'research, education, outside world' triangle, we focus on the complex transitions required and the dynamic processes and interactions of the various players in them. In doing so, we often work in a co-creative and co-designing way. We focus on the following areas of interest in doing so:

1. Technology
2. Economy
3. Participation and support
4. Legislation and governance
5. Education, learning and development

Combining these areas of interest is important in the success of projects aimed at sustainability. Besides technical issues, for example the large-scale installation of solar panels, it is important to consider the other areas of concern. We do so by looking at the business case in multiple ways: by looking at social and environmental impact, for example, in addition to financial impact. By getting citizens or other stakeholders to participate. By exploring whether legislation and governance can be blocking implementation. This will be examined in detail by addressing the following themes in depth:

- residual waste flows such as packaging, textiles and waste streams;
- energy flows through carriers: heat, electricity and hydrogen, with solar and wind energy as sources, interaction between those carriers and matching energy supply and demand with those carriers;
- circular operations: business models, the impact of decision-making and economics on the organisation;
- the approach needed to break the current deadlock: participation, experimentation, processes and methods that can be used in such an experimental environment;
- the cross-border nature of sustainability issues and the declining capacity of individual countries to act, which requires our students to have the knowledge and skills to realise an effective international approach;
- the forms of knowledge, skills, and pedagogical actions needed to achieve these transitions. And also the structural changes in the education system to facilitate and nurture these within and outside of The Hague University of Applied Sciences;
- the impact of climate change on vulnerable groups in the region, at national, European and international levels, and how these vulnerable groups may participate in helping shape the fundamental transitions. Human rights and children's rights are violated and conflicts arise between groups. This requires different forms of governance and a model of inclusive participation for the vulnerable groups.

3 Theme: digital future

Digital technology for a just and sustainable society

We are already deciding what the digital future will look like. We need to make choices on how people, organisations and technology work best together. We believe the digital future should be one where citizens and professionals use digital technologies to shape a society where people can live safely, healthily and well, have equal opportunities and have a positive impact on the natural system we are part of. As a knowledge institute, we want to contribute to this by giving our students and organisations around us the knowledge and tools to shape that future. Digital technologies such as artificial intelligence (AI), machine learning, data collection and analysis, robotics, Internet of Things (IoT), digital twinning and Building Information Modelling (BIM) are already influencing our society to a great extent. In the next decade, that influence will only increase.

Through research, we want to ensure that the professionals we train and work with can counteract the potential negative consequences of that influence and exploit the positive opportunities. Our focus is on safety and resilience and the future of work. In doing so, we always look at the role of people, organisations and technology and how they influence each other. We are already actively working on this from various centres of expertise and our education. With this agenda, we are laying a foundation to strengthen collaboration with external and internal parties on this topic.

Outlook

We want to contribute to the development in which people can use digital technologies to shape their lives and work. They can turn to us to harness digital technology for a virtuous economy. Together with them, we want to develop systems, technology, and business and organisational models that enable them to do so.

In 10 years' time, we will be part of a network of players who have deployed and continue to deploy digital technology with the goals we describe above and who want to keep increasing their influence. Our contribution to this is characterised by us being an organisation that:

- develops innovative knowledge together with practitioners to influence how digital technologies are deployed in practice;
- together with practitioners, trains professionals with the knowledge and skills to use digital technologies purposefully and prevent negative consequences;
- connects people with the aim of developing new knowledge in the application of digital technologies;
- shares its knowledge and network to provide as many people as possible with knowledge and tools to contribute to a just and sustainable society and a virtuous economy through the application of digital technologies;
- has enough people with sufficient knowledge of digital technologies to be able to respond quickly to new developments;
- provides experimental space to innovate;
- connects people with different areas of expertise to develop new knowledge about (the application of) digital technologies;
- has knowledge of how fields can respond sufficiently quickly to developments in digital technologies.

This means, among other things, that our degree programmes and research groups work together to ensure that they speak a common language, sometimes figuratively through a shared knowledge base, sometimes literally in terms of programming languages, or shared resources and modules developed jointly. This allows them to integrate and further develop their knowledge and to find and engage *state of the art* expertise in a central location.

In 10 years' time, our direct collaboration partners will know that they can rely on us structurally, will find it a success to work with us and will see how this changes their economic sector. Our partners know and convey that The Hague University of Applied Sciences has contributed to the deployment of digital technology on two topics in particular, always with a focus on people, organisation and technology within them.

Digital Future	
Safety & Resilience	Future of work
People - Organisation - Technology	

- Safety and resilience
  Security (preventing misuse, preventing bias in applications, a healthy and safe environment) as a prerequisite for design the and deployment of digital technology. Resilience (being able to recognise and act on threats, digital literacy, participation) of people and organisations. This ensures equal opportunities and industriousness without losing sight of social value. Our goal is to enable responsible innovation. To make our society and organisations agile and resilient in the face of future developments. To ensure our safety.

- Future of work
  From the human perspective, we need to look at where we deploy people and where we deploy machines and how they work together, and how we train people for all this. With deployment of digital technologies to support employees and business processes, we can mitigate pressures on employees and impending staff shortages. Digital technology allows us to shape business activity with a positive impact on people and the environment. Using digital technology to use (raw) materials sustainably. Establishing other revenue models and operations, such as from ownership to service. Our goal is to be prepared for and help shape the jobs of the future.

From existing collaborations, we have grown towards new partners and have national and international networks on our core themes. They keep us on our toes with an external perspective. Together with them, we set up new projects. We are part of an association of institutes and companies that structurally (financially) support each other. From society, requests for support reach us continuously.

Theme description

What we know is that the deployment of digital technology[1] has radically changed the way we live, work, care and produce in recent decades. The disruptively rapid development of generative AI, for example, illustrates how quickly and sometimes unexpectedly change can happen. We also see that justice and sustainability are under pressure in society and business. Both these challenges and also the rapid developments in digital technology demand a high degree of agility from people and organisations. This is what we want to contribute to.

As a university of applied sciences, we want to offer people and organisations tools to contribute to working on these challenges. Such tools include the design, development, deployment and use of digital technologies. Fields are changing due to digitalisation for almost every professional. It affects all degree programmes, students and staff at The Hague University of Applied Sciences. And then opportunities present themselves. Through our range of degree programmes on offer, we can make students digitally proficient. And by connecting technology to practice-based research, we can simultaneously address acute problems and train students who can do the same in their own practice in the future.

Many curricula already address digitisation. We see a growing need for knowledge about the operation, capabilities and limitations of digital technology. We develop this knowledge partly through our own research. Organisations need new knowledge, direct application, newly trained professionals and in-service training for current professionals. We also foresee a need for 'connectors' who have basic knowledge related to digital technology in the coming years: these are people who form the bridge between IT specialisms and application in the organisation. IT specialists are needed with more of an eye for the human perspective and ethical and legal aspects. Finally, we see the outside world demanding multidisciplinary student teams to tackle problems. By organising that more, we help society and enable our students to develop a shared language they will need in their professional lives.

1 *Digitisation*: The continuous integration of digital technologies and digitised data into the economy and society.
Digital technology: In a general sense: instruments, systems, devices and tools that generate, store or process digital data and their implementation in the physical world. In key technologies, we see these particularly in the Digital and Information Technologies and Engineering and Fabrication Technologies categories.

In this regard, digital literacy is a prerequisite. That means determining what level of literacy is necessary for our students and lecturers based on demand in practice and long-term vision, and how to get to that level. But that is just the beginning. As a knowledge institute, it is up to us to help determine what the approach to the aforementioned challenges will look like. We cannot wait and see, but must actively work to help shape the digital future. In light of this, we want to empower students, citizens and organisations to make choices around the design, development and deployment of digital technologies. Recognising the pros and cons of digitisation and focusing on exploiting the benefits. The fact that the limits of digital technology development are not yet in sight calls for critical examination: What is (of) value? What added value do humans have over digital technology?

People have emotions, empathy, concerns, a conscience, capacity for creativity, needs, responsibilities. Digital technology can be fast, accurate, insightful, powerful and immensely helpful. In our view, digital technologies are essential in solving societal challenges; they contribute greatly to the economy and have the potential to do so increasingly. What that future will look like for society, we determine now. We need to make choices on how people, organisations and technology work best together. We do this in the themes of safety & resilience and the future of work. That also means weighing interests in society and taking a stand on a number of issues:

- Which technology should be developed first?
- Which business and organisational models do we think are just and sustainable?
- What should be done via human-human contact?
- What via human-machine interaction?
- What by machines and digital technology?
- How are we going to apply that in our programmes and research groups in collaboration and co-creation?

We want to contribute to making organisations agile and resilient, so that they can cope with the challenges coming their way and ours in the future.

What are we doing and what are we developing?

With nearly 20 research groups at The Hague University of Applied Sciences touching on aspects of digitalisation, we are working on ongoing and upcoming projects on the topics in the table below. In turn, each research group works on this with students and lecturers. In the Cyber Security and Digital Operations & Finance centres of expertise, digitalisation has been a central theme for several years. In Global and Inclusive Learning, Transformative Technology is one of the research themes. In Mission Zero, digital technology is used to work on smart grids and smart cities. The Data Science research group in the Health Innovation centre of expertise has provided a solid framework for knowledge in data science and AI. In addition, research groups are active in several centres of expertise, in which digitisation is developed and used as a driving force for a sustainable and just society. Precisely because digital technology impacts all facets of society and raises practical and research questions, we see growing potential for collaboration between non-technical and technical research groups in all centres of expertise. With these research groups, the Hague AI & Data Lab (spearheaded by DOF, ITD, BRV, TIS), the SPRONG consortia Cyber Resilience and Grounded, the pioneering role of The Hague University of Applied Sciences in WE IT2.0, the Unesco Chair, the 'AI & digitalisering bij De Haagse Hogeschool: voor een duurzame en rechtvaardige samenleving' (AI & digitalisation at The Hague University of Applied Sciences: for a sustainable and just society) memorandum and the collaboration that has been initiated around it, there is a solid foundation for the theme of the digital future. Because the topic is cross-disciplinary, there is a lot of added value in strengthening collaboration between different research groups. Together with various players in the field of education, the research groups are involved in the Community of Practice AI & Data Science (organised by the Hague AI & Data Lab) to strengthen mutual collaboration. This CoP will be extended to include exchange on the application of AI (such as ChatGPT) in our own (educational) processes.

Our approach, by sub-issue

Safety & resilience	**People:** • digital literacy for safe handling of data (also lifelong development); • tools for responsible, people-centred deployment of digital technology in decision-making, management, governance and policy; • tools for preventing or fixing bias in AI and machine learning; • including design and use of technology, for example in healthcare; • increasing civic participation/participation of *smart citizens*; • civic participation in the creation of technology/democratisation of technology. **Organisation:** • deployment of digital technology by governments to strengthen democracy, civic participation, smart city development, community-building, climate adaptation, security; • making organisations more cyber-resilient (due to the high threat from cyber criminals and state actors) to ensure they can continue to contribute to the economy in a sustainable way; • tackling perpetrators of cybercrime; • tracking disruptive influences from social media, tech companies and state actors; • deployment of digital decision support for security professionals and decision-makers within government (police officers, judges and administrators). **Technology:** • design of secure applications of digital technology; • preventing misuse or abuse of digital technology; • deployment of digital technology in public spaces (energy smart grids, data-driven redesign for climate adaptation); • deployment of digital technology in public administration and justice.
Future of work	**People:** • more efficient, safe and flexible work; • making use of untapped labour potential; • new ways of collaboration between employers and employees; • human-machine/robot/online-bot interaction; • teaching employees new digitalisation skills; dashboard reading; • digital risk communication to customers, employees and patients through immediate/real time feedback. **Organisation:** • new business models such as as-a-service (from ownership to leasing & sharing economy), digitalisation for sustainability of services and manufacturing, energy transition; • corporate sustainability of business models and business processes; • making business processes more sustainable and safe through measurement and reporting; • working with digital platforms (employer/employee; healthcare provider/client; producer/consumer; business-to-business); • health (healthcare, prevention, diagnostics), industry (manufacturing, horticulture, construction), education. **Technology:** • robotics for process automation; • smart/predictive maintenance; • data analysis for sustainable chains, digital product (materials) passports related to reuse and disassembly; • decision support, scenario testing, visualisation (dashboard; digital twinning; immersive technology); • security and privacy-by-design for processes and systems; • products-as-a-service/mobility-as-a-service; • health technology (wearables, early warning, direct feedback, care-at-home, self-diagnostics, online therapy etc.

How do we continue to develop?

The themes within the knowledge agenda function as binding elements in the school, connecting degree programmes and research groups. Externally, such a theme means that it permeates the entire university of applied sciences. We are not going to be a jack of all trades, but with the breadth of this theme, we want to give degree programmes and research groups room to contribute to it from their own approach and profile. Complementing this, we want to strengthen mutual and external collaboration. We build on where our strengths lie, provide a solid foundation and allow peaks to emerge where there is energy and collaboration. So the current profile is a foundation that we continue to shape together with the relevant research groups and in consultation with the degree programmes. We explore where any gaps remain in our research capacity and start new research groups where necessary. To start with, we will work on external profiling and internal collaboration.

Externally

We set up shop for external parties and do so with three aims:

- Collaboration
  Potential research partners and clients will be able to find and invite us for collaboration based on our ambition, pursuits, completed projects and products.

- Recruitment
  Students (prospective students from senior general secondary education and pre-university education but also lifelong learners) see that they can learn and develop in the field of digitisation with us.

- Influence
  Social partners and companies see what we do and what we are capable of and will value us better and thus the quality of our students. This allows us to co-determine developments in policy/practice.

Specifically, we can do so via:

- an external desk for business enquiries (along the lines of the software lab);
- working with the 'trout pond' (talent pool) model: companies can become members of our 'association' and submit internship assignments at a fixed fee. For real assignments, they can choose from four flavours (which can also be combined):
  - simple: student assistant;
  - small: minor group;
  - medium: student intern/graduating student;
  - complex: researcher-lecturers;
- external-facing website.

Internally

Organising collaboration with the aims of:

- recruiting the right expertise that we can deploy sufficiently flexibly (e.g. data scientists who can be flexibly deployed on different projects and in faculties and research groups);
- acting jointly in grant applications to be a more attractive partner in consortia;
- knowledge development and sharing.

Specifically, we can do so via:

- digital technology research/education as a joint facility expert bank.
  An expert bank/competence centre houses specialists in data science, for example. They can be hired internally to work with education experts in specific fields, on the content of a degree programme to develop a digitisation subject or to run part of a project with research groups (in the design of data acquisition and data processing, or analysing data). Having these specialists work together in a team allows them to work with each other on their specialist knowledge. Such an expert bank again requires different competences within the field of data science such as expertise in AI, complex statistics, white box modelling, or visualisation and twinning, etc.
- Community of Practice Digital Future
- This community focuses on exchange and collaboration on:
  - Research
    - unfinished research and asking for help;
    - being critically questioned about the course and setting the course together;
    - fine-tuning the ideas in proposed applications and providing an opportunity for colleagues from other fields to join in.
  - Education
    - subject transfer and design;
    - being critically questioned about the course and setting the course together;
    - fine-tuning the ideas in proposed applications and providing an opportunity for colleagues from other fields to join in.
  - Inspirational lectures
    - successful internal projects and projects from external companies and institutions.

In addition, the following present opportunities and are under development:

- the application for PPP ecosystems Katapult in the fields of Human Capital and IT;
- exploration of digitisation as a theme in the ZHIA South Holland Impact Alliance (universities of applied sciences in the region);
- developing learning communities;
- developing master's degree programmes (in collaboration with other university of applied sciences);
- collaboration with Leiden-Delft-Erasmus Universities
- collaboration with I-Partnership of the Rijksorganisatie voor Ontwikkeling, Digitalisering en Innovatie (National Organisation for Development, Digitalisation and Innovation).

The development of our own organisation

Digitalisation will also start to affect our own education and research processes.
By researching that, learning from research focused on other applications and learning from the skills students and lecturers gain in practical assignments, we can strengthen those processes. In doing so, we are also using AI and machine learning to examine the extent to which our students have equality of opportunity and how to prevent or fix any bias. The Learning Technology & Analytics research group researches applications within The Hague University of Applied Sciences.

Inclusive education in the digital context is not just about access to technology; it is about creating digital learning experiences that are accessible, engaging and meaningful for all students. By embracing a nuanced approach to inclusive education, The Hague University of Applied Sciences ensures that the digital future is one in which everyone can participate and thrive, in a way that matches their individual values and aspirations. The well-attended first master classes and workshop on generative AI in education underline that need for us to continue learning. Lecturers indicate they want to develop in the field of digitisation. We are therefore continuing to work on the lecturer competences needed and will adjust the internal range of training courses available accordingly.

Collaboration with external partners

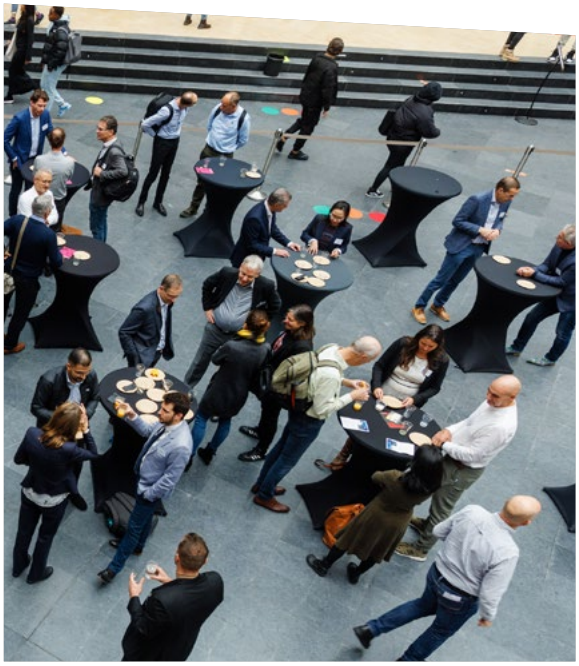
The Hague University of Applied Sciences is already strongly connected to the outside world on this theme, including through the Dutch AI Coalition, Digitalisering in de bouw (Digitisation in Construction, with 4TU and 14 universities of applied sciences), Greenport, AI Hub ZH and AI Hub ZH Technological Industry, WE IT 2.0, mkb-digiwerkplaats (SME digital workplace), Unesco Chair, various governments and companies including municipal executives and SMEs involved in research projects, clients in minors, professionals in MBA, SPRONG consortia Cyberweerbaarheid (Cyber Resilience) and Grounded and other multi-year research consortia, national Sleuteltechnologie (Key Technology) thematic table, lector platforms PRIO, Applied Smart Robotics & AI, Sustainable Smart Industry, collaboration with RVO on digitisation in sustainable construction.

We have the ambition to work even more with external partners. We do so with a focus on the previously mentioned topics of safety & resilience and future of work. And within the frameworks of the various agendas at local, regional, national, and international levels.

Locally

Focal points for local policy on digitisation/AI: municipality of Zoetermeer

- technological developments and data analytics that can help promote livability, vitality, mobility, waste chain, prevention of socio-economic issues, and health, among others;
- the transformation of the economy: more circular, automation, robotisation, online and customisation. These changes increasingly call for a flexible labour market and lifelong development.



Focal points for local policy on digitisation/AI: municipality of The Hague

- Four sectors offer many opportunities for the economy of the Hague: manufacturing, construction, ICT & creative, and healthcare. Technological innovations, digitisation and the use of big data provide means to address these issues. But there are also risks involved, such as monopolies, cyber terrorism, infrastructure vulnerability and a loss of privacy. The Internet of Things and other technological developments are changing the way we work and the kind of work we do.
- The match between the labour force of The Hague and the demand from the business sector can become greater if workers continue to learn and develop, so that they remain attractive in the labour market in the future.
- The economy will mainly grow within organisations and organisational units engaged in data science and key technologies such as artificial intelligence, quantum technology and blockchain. The Hague is positioned well internationally for this, with leading knowledge institutes in the region, such as TU Delft, Leiden University and TNO, and with international and innovative organisations within the city, such as Europol, UNOCHA, the UNICRI Centre for Artificial Intelligence & Robotics and NCI Agency.
- The Hague is very active in the smart-city field as one of six Dutch cities in the Climate-Neutral & Smart Cities EU Mission. The Hague has won an international award for its Scheveningen smart energy living lab and has recently acquired Expertisecentrum Digitale Innovatie en Smart City (ECDISC, the Expertise Centre for Digital Innovation and Smart City).
- With Haags Samenspel (Teamwork in The Hague), the municipality of The Hague focuses on encouraging and facilitating citizen participation in local decision-making. Digital technology explicitly plays a key role in this, with the municipality deploying and developing innovative solutions in collaboration with, among others, the municipal executive of Amsterdam and knowledge institutes.

Focal points for local policy on digitisation/AI: municipality of Delft

- Delft is in a good position to continue developing from a knowledge city to a leading technology city in the Netherlands. The knowledge and innovation ecosystem of Delft excels in ten themes, namely: energy, climate and water, AI & data science, robotics, quantum, life sciences & industrial biotechnology, medical technology, mobility, aerospace, and offshore.

Focal points for local policy on digitisation/AI: Westland

- The trends with the greatest impact for Westland are: increasing geopolitical instability and economic uncertainty, individualism and new social connections, healthier and older people, population growth, digitalisation, climate change, sustainability, cleaner and smarter mobility, blending of positions and mixed living-working environments.
- The impact of digitalisation on the economy and society is huge. There are opportunities for growth for the high-tech sector itself, but also consider developments in robotics, artificial intelligence, blockchain, 3D printing and the Internet of Things.
- In the horticulture cluster, digitisation is supportive and indispensable for the primary process.
- The impact of technological developments is still uncertain in many areas. We still expect employment growth in many sectors in Westland, especially for less educated people. On the one hand, some professions will disappear. On the other hand, new professions will be taking their place. It is still unknown how that will play out.
- When it comes to social issues such as mobility and healthcare, digitisation can be a solution.

Regionally

The Groeiagenda Zuid-Holland (South Holland Growth Agenda) focuses on "five system interventions, with associated (national) propositions, which we address in coherence and which are fundamental for sustainable earning capacity and new jobs". One of the ecosystems focuses on digital technology in particular, but digitalisation also plays a major role in the other four system interventions.

- ecosystem knowledge and innovation (focusing on ecosystems around key digital technologies, health, medicine and care,
- biocarbons and biofuels, energy, energy technology and energy transition, high-tech equipment and smart industry, aerospace, maritime and delta technology, horticulture, public domain innovation);
- manufacturing and new value chains;
- energy infrastructure and renewable energy sources and raw materials;
- mobility transition and logistics transition;
- human capital and lifelong development.

Nationally

Digital technology is one of the clusters of technologies from the Kennis- en Innovatie Agenda (KIA; the Knowledge and Innovation Agenda) Key Technologies. This KIA is one of the two so-called underlying themes necessary to enable innovation in the other themes. In doing so, the Digital Future theme closely touches on the breadth of the KIAs (Energy Transition & Sustainability, consisting of the sub-agenda's: Integral Knowledge and Innovation Agenda on Climate and Energy, Future-Proof Mobility Systems and Circular Economy; Agriculture, Water and Food; Health and Care; Safety; Key Enabling Technologies (including Key Enabling Methodologies); Social Earning Potential).

The central national player in the field of AI and data science is the Nederlandse AI Coalitie (Dutch AI Coalition), of which The Hague University of Applied Sciences is a member. AiNeD was founded through the Nederlandse AI Coalitie, which has been awarded funding from the Nationaal Groeifonds (National Growth Fund) and from which several more funding programmes will emerge in the coming years, including the AiNed ELSA Labs, in which the Faculty of Public Management, Law & Safety participates.

The Hague University of Applied Sciences is actively involved or a partner in the already awarded Nationaal Groeifonds (National Growth Fund) AiNed, Photondelta, Quantumdelta, NextGenHightech, and Bouw & Techniek (Construction & Technology, with digitisation as a cross-cutting theme) applications. The next Nationaal Groeifonds (National Growth Fund) applications for round 3 involving The Hague University of Applied Sciences touch on the theme of digitisation: FRAIM - shaping the future of work, Creative Industries Immersive Impact Coalition (CIIIC) and Vertical Farming CustUNize. Through Npuls, The Hague University of Applied Sciences participates in the Nationaal Groeifonds (National Growth Fund) opportunities for higher education together with SURF, the VH (Association of Universities of Applied Sciences), the VSNU (Association of Universities in the Netherlands) and Kennisnet.

The Nationale Wetenschapsagenda (National Science Agenda) comprises 25 routes. With a digital future theme and the expertise that The Hague University of Applied Sciences has in-house, we can contribute to the following routes:

- Circular economy
- Sustainable production of healthy and safe food
- Energy transition
- Prevention and health research
- Quality of the environment
- Measuring and detection: everything, anytime, anywhere
- Towards resilient societies
- The quantum/nanorevolution
- Smart industry
- Smart, liveable cities
- Between conflict and collaboration
- Value creation through responsible artificial intelligence and big data.

With the theme of the digital future, we particularly flesh out the theme of key technologies as named in the Strategische Onderzoeksagenda HBO (Strategic Research Agenda for Higher Professional Education); Key technologies and sustainable materials. Key technologies are characterised by a broad scope or reach in innovations and/or sectors. The digitalisation, automation and robotisation of our industry are taking off. This involves a combination of digitalisation, linkages of intelligent systems and 'future technologies', radically changing production processes in industry and ultimately business models and consumption patterns. This creates a new basis for developing products, services and also smart sustainable materials. Part of this knowledge area also includes the social impact and acceptance of digitisation and the products and services being developed.

Deployment of digital technology can also make a crucial contribution to the themes from the Strategic Research Agenda of the Vereniging Hogescholen (the Association of Universities of Applied Sciences) - health and welfare; education and talent development; resilient society: in the neighbourhood, city and region; urban environment: sustainable and liveable; sustainable agriculture, water and food supply; energy transition and sustainability; entrepreneurship: responsible and innovative; security.

Internationally

Moving towards a digitised economy and society, Europe chooses solidarity, prosperity and sustainability, with citizens and businesses confident in their own abilities, with a secure and resilient digital ecosystem and secure and resilient supply chains. The European Commission's AI policy is a good example of its commitment to digitalisation. The commitment is to "ethical, human-centric, trustworthy, secure, sustainable and inclusive" practices and linked to the Sustainable Development Goals, the European Green Deal, EU Mission Climate-Neutral & Smart Cities, EU Digital Building Logbooks and Smart Readiness Indicators. The aim of the European policy is "to develop an AI ecosystem that brings the benefits of the technology to the whole of European society and economy". The EU AI regulation states: "AI should be a tool for people and be a force for good in society with the ultimate aim of increasing human well-being. Rules for AI available in the Union market or otherwise affecting people in the Union should therefore be human-centric, so that people can trust that the technology is used in a way that is safe and compliant with the law, including the respect of fundamental rights."

KNOWLEDGE AGENDA: EMBEDDING IN THE ORGANISATION

We realise the knowledge agenda by additional steering via existing lines. Moreover, we have already noticed in the creation of this agenda that it is important to always put content first. That is why we focus on content steering and connecting the themes.

Steering and support

Simplify: we steer along existing structures and processes and continue to improve them.

Several studies and research activities are currently taking place that are already in line with our knowledge agenda. The aim of the knowledge agenda is to further focus research and strengthen internal and external collaboration. We emphatically do not want to turn this knowledge agenda into a complex consultative structure. In terms of steering, we therefore closely align with existing consultations (PDCA and CDO) and the leading lectors' consultation.

The current centres of expertise are in the lead to take these three themes forward through joint projects with education and external stakeholders. In doing so, the centres of expertise build on their long-term plans (running from 2021 to 2025), but will increasingly focus them on the three themes of the knowledge agenda. Progress is accounted for quarterly through the PDCA cycle (MaRep meetings). Within those meetings, in addition to discussing KPIs and finances, a qualitative and appreciative discussion about the further development of the knowledge agenda also takes place. The agenda is also part of the MaRep process of faculties and service departments. In the meeting with the Executive Board, the contribution of the centre of expertise to achieving progress on the themes of the knowledge agenda is discussed. This is a substantive conversation about what connections have been made and what impact has been realised and a conversation on process to strengthen the embedding of the three themes in the work.

For each theme, two leading lectors from two centres of expertise will be responsible as lead managers. They are responsible for the further development of the knowledge agenda for their theme and funding the right projects. They ensure that these projects have sufficient impact. They are also responsible for ensuring that the other centres of expertise are involved and funded where necessary.

These pairs of leading lectors ensure that the central directors' meeting (CDO) discusses progress on the themes. They account for this progress and make proposals for further development to the Executive Board. In doing so, they involve internal and external stakeholders and education by seeking their feedback and input. The leading lecturers get support while developing and monitoring a programmatic approach to their themes.

To enable leading lecturers to manage this, a properly functioning research infrastructure is necessary. The next chapter discusses this further.

Theme	CoE
Just society	Health & Innovation
	Governance of Urban Transitions
Sustainable transitions	Mission Zero
	Global & Inclusive Learning
Digital future	Digital Operations & Finance
	Cyber Security

Collectively, we steer this process by discussing the three themes three times a year in a in consultation with faculty and department directors, supplemented by leading lectors, and discussing in particular how we make progress on the themes together. These consultations are prepared for each theme by the leading lectors acting as lead managers.

Programme strenghtening steering and support research

Steering through existing structures and processes requires a high quality of these structures. The same applies to the research infrastructure at the college. In its strategy, the NWO describes four building blocks that match our ambitions regarding the preconditions for good research. These include, for example, creating a healthy research culture, in which collaboration is key. They also mention a robust research system, which ensures that funding and clarity regarding placement in the organization are well regulated. The VH describes the same in its research agenda: Universities develop robust research groups that can program, sustain and grow for long periods of time. This makes them reliable knowledge partners. This also requires career paths for professors, teacher-researchers, post-docs, PhDs, PDs and support staff with an eye for diversity and inclusiveness.

However, the evaluation of the Centers of Expertise, "Move on," showed that the organisational and process setup around the CoE's could be improved. The Executive Board endorsed this and set out several actions to ensure that the (organisational) structure and calculation arrangement is efficient, effective and fit for the future. These actions have been taken up but require partial follow-up. These outstanding actions and the newly identified bottlenecks and insights are being addressed in a coordinated and coherent manner. Therefore, we are now accelerating the implementation of the actions and working towards a proper solution to the steering and structure questions through a short-term program in which the remaining outstanding actions from the administrative response will be completed as far as possible and a proposal for the division of roles in the matrix structure will be made.

Three topics in particular are important:

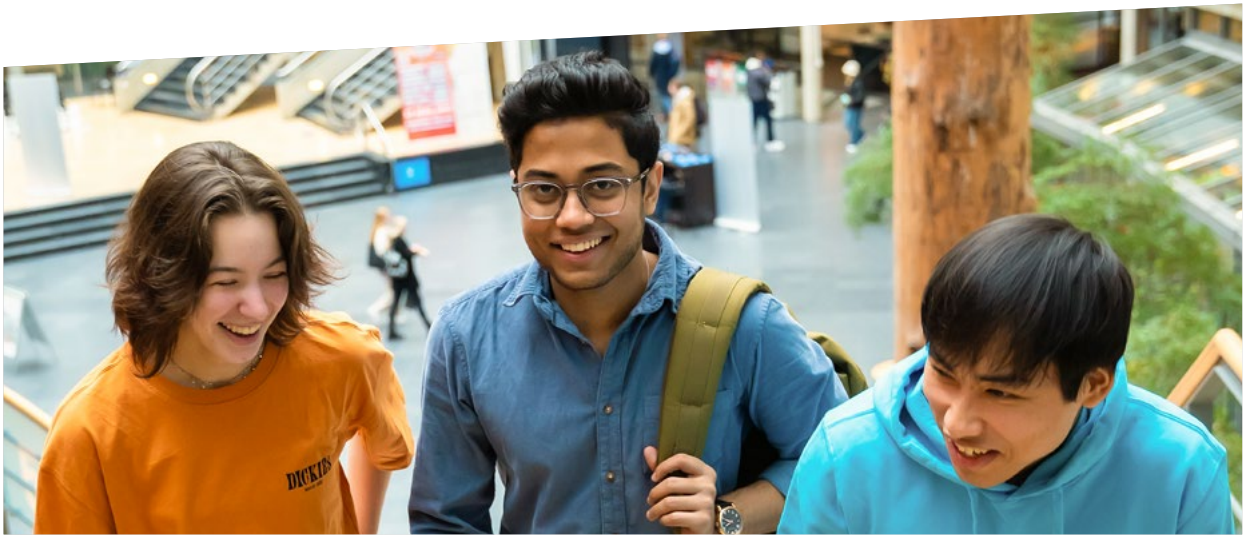
1. Strengthening the organisation of research
2. Developing strategic HRM policies.
3. Professionalise research support

The second and third topic have already been taken up within the HRM and B&C departments. HRM has implemented several actions, including developing a new job structure for research. A first draft is currently under review and the research job series has been updated. In addition to the job center, it is important that research be an integral part of the personnel planning and assessment cycle. Urgent issues such as project administration or strengthening the Funding and Support function have mostly been addressed and realised. Opportunities for CoE's to hire their own support have been expanded. For a structural adjustment of the support structure, we would like to include the results of the Berenschot analysis on support. As mentioned, there are still steps to be taken. Housing policy for research will be improved. This includes physical places and physical and digital visibility. The program ensures that where possible, policies are implemented as soon as possible and further developed and elaborated where necessary.

The first point is a more fundamental one that is ultimately about how we have structured research and whether the choices we have made in the past are still effective. The matrix structure has had the unintended effect of creating ambiguity in roles and responsibilities that inhibit when it comes to effectively support, advise or collaborate. Progress has been made and needed improvement actions have been initiated, but implementation of the evaluation report's recommendation, "matrix enforcement and improvement," requires a new integrated approach. To this end, current insights gained will be concretised and further steps taken toward a clear division of roles between faculty directors, program managers, (leading) lectors and support, within or outside the matrix structure. If necessary, existing policy frameworks can be recalibrated. Consider, for example, clarity on the position of CoE's in relation to faculties, the position of (leading) lectors and practical issues such as cost-places. This will of course involve the organisation. In this way, professorships and faculties are involved in the development of this knowledge agenda.

Strengthening the organisation of research also ensures the crucial integration with education. An ambition that we all share, but should not be hindered by the organisational setup. Cooperation should always come from both sides. CoE's, but also teachers, programs and faculties, must be driven by the success of research. Research becomes part of the strategic personnel planning of programs and faculties.

Through this knowledge agenda, we work together to create a strong profile for THUAS and our practice-oriented research and education. With the elaboration of the knowledge agenda in terms of steering and implementation as described above, we ensure that everyone can participate and feels involved. Together we can shape the knowledge agenda, whether or not through creative forms and always with the organisation involved.



Funding

Additional funds have been made available by the central government for the coming years, about half of which we are investing in this knowledge agenda. With these funds, we give the centres of expertise an extra impetus to develop the agenda and implement projects together with faculties, departments and the outside world. The framework letter allocates these funds and includes KPIs for research. These funds are allocated to centres of expertise. The leading lector is responsible for the effective spending of resources on the themes in the knowledge agenda. This is what the Executive Board discusses with leading lectors in the regular MaReps. For 2024, we have chosen to invest equal amounts per theme and per centre of expertise as *seed money*. On this basis, the pairs of centres of expertise develop a coherent programme of projects and activities for each theme. From 2025, funding will be allocated based on that programme. This way, all themes get an equal chance to develop, but we can also steer on quality and ambition per theme and centre of expertise. In making this choice about funding:

- the importance for research to have long-term clarity on funds available is taken into account;
- a decision is made based on the full programme of projects and initiatives by theme/centre of expertise;
- clarity is provided as regards what the Executive Board bases its programme funding decisions on.

We invest the remaining available extra funds in strengthening research support, university-wide and in centres of expertise. We are already noticing that the increase in external revenues is increasing the demand for support. A successful knowledge agenda needs effective support.

Connection to educational vision

Strengthening collaboration in the triangle requires an active contribution from everyone. In practice, it is about pooling the energy of developing education and research and connecting it with external stakeholders. This co-creation is one of the main themes of the strategic plan. To further strengthen this co-creation, the education vision and the knowledge agenda go hand in hand. The themes of the knowledge agenda are pre-eminently the areas where students will contribute to practice-based research for external clients and the themes for which centres of expertise can make contributions to the development and content of educational programmes.

Connection to networks of strategic partners

As The Hague University of Applied Sciences, we are already active in networks with our strategic partners. In the coming years, we will use the knowledge agenda to determine our choice of partners and to properly choose our input in networks. Currently, the three most prominent university-wide networks are:

1. In the *Zuid Hollandse Impact Alliantie* (ZHIA, the South Holland Impact Alliance), we, as The Hague University of Applied Sciences, work structurally with Leiden University of Applied Sciences, Inholland University of Applied Sciences and Rotterdam University of Applied Sciences on development in the region. In doing so, we also connect on the themes that are strongly linked or overlap with our knowledge agenda: health, care, welfare, sustainability and AI.
2. Within the *European Universities Initiative*, we are working with eight European higher education institutes to build a European network of institutions, incubators, industry, cities and regional ecosystems to drive innovation. From The Hague University of Applied Sciences, the Designing Value Networks research group is working on a proposal within this consortium to research the sustainable innovation triangle.
3. Within the *The Hague Network* of seven European knowledge institutes, we have been collaborating on education and research since 2016. Our knowledge agenda guides our activities in this network.
4. To live up to our EU ambitions, we are also taking part in the pilot project 'Richting Europa' (Towards Europe) of Regieorgaan SIA (Taskforce for Applied Research SIA), in which we will work on developing and implementing a strategy to better align our practice-oriented research with the European research agenda.

KNOWLEDGE AGENDA: INVITATION FOR COLLABORATION

The knowledge agenda of The Hague University of Applied Sciences is not a static document. It is a collection of activities, through which we aim to make an impact in research, education and society on the themes we have chosen. We will develop and implement those activities in the coming years. This paper is a kick-off for that process. The agenda describes where we want to go, how we, The Hague University of Applied Sciences, give substance to the themes and also what we are already doing or developing. In the coming months and years, new ideas will emerge in collaboration between research, education and the outside world, which we cannot oversee at present.

This also makes the knowledge agenda an invitation to everyone inside and outside of the university of applied sciences who wants to work with us on a just society, sustainable transitions and a digital future. Contact one of our centres of expertise and find out how we can move forward together, whether this concerns research, education or making a social impact. Working together, we will build strong networks around these important themes in the coming years.

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