




CvB stukken voor agenda Universiteitsraad

Overlegvergadering d.d. : 6 november 2019
Commissievergadering : OOS
Agendapunt : People-Centered Technology
Vision on Research 2020-2030
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Betrokken dienst: SP

Secretaris: Wichman

Portefeuillehouder: Palstra

paraaf: 
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1. Status agendapunt:

Rol URaad:

- Ter informatie
- Ter advisering
- Ter instemming
- Anders:

2. Eerder behandeld in:

CvB-Decanenoverleg 11 juli jl.

CvB, 3 september, 9 september, en 16 september, en 23 september jl.

UCOz, 24 September, jl.

In de diverse vergaderingen is aandacht vooral uitgegaan naar aansluiting bij proces en terminologie van Shaping2030, het bieden van een profiel, en het richtinggevend karakter van de visie (in relatie tot de strategie).

3. Toelichting/samenvatting (engelstalig):

Anno 2019 research at the University of Twente stands for a systemic, open and integrative approach, exemplified in our motto; High Tech, Human Touch. We are known for our cross- and multidisciplinary and design-oriented way of working. Creating value for and have impact on partners and stakeholders in the region, the Netherlands, and ultimately society at large. Providing solutions for complex societal challenges worldwide.

Major trends, developments and dynamics in socio-economics, technology, innovation, science, etc means that in order to add value to society in the future we have to give substance to the essence and identity of the University of Twente in a different way.

The University of Twente wants to relate to and have impact on the following three socio-economic themes and challenges between now and 2030 (Shaping 2030):

- Digitalization: We consider digital technologies enablers of growth and positive change, which why we choose to play a key, proactive role in their design and development. We believe that questions of security, trust, ethics and autonomy are crucial.
- Social divide and diversity: It is our responsibility to design technologies, applications and services that are 'fair'; universally available, accessible, affordable and accommodate diversity, both technical and human.

- Sustainability: we aim for maintaining change in a balanced and resilient environment, in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.

How can we contribute to a digital, fair, and sustainable society? This focused ambition is at the core of our vision on research. People-Centered Technology has a leading role to play in providing solutions for complex societal challenges worldwide. Our research is aimed at making a difference in today's society.

Strategy: how to realize our vision on research?

After the development of the vision on research and the preliminary decision by the Executive Board, the follow-up trajectory starts: drafting a research strategy for the next 3 years. Elements for the strategy are identified in the vision: end points, framing of the research at the UT as well as guiding principles to be further developed in the strategy. The vision gives direction to the dossiers and projects in the strategy.

Here it also important to clarify the relationship between the Shaping2030 trajectory and the research vision / research strategy trajectories as well as other strategic developments such as the sector plans, committee Van Rijn, committee Van Weckhuysen, etc.

Native speaker

The text 'People-Centered Technology, Vision on Research 2020-2030' will be edited by a native speaker.

4. (Voorgenomen) besluit CvB:

Gezien

It is important for the UT to formulate a vision for research. The dot on the horizon. Where do we want to go with our research? What is the UT's research profile in 2030?

In recent years, no comprehensive vision has been formulated with regard to research. This complicates, for example, the positioning and profiling of the UT, strategic programming (making choices), and coordination between research strategies of various organizational units. There are, however, elements that can be reflected in a vision expressed in pieces such as Vision 2020, UT2020 reorientation research, the use of 'profielingsmiddelen', the plans of the faculties and institutes, the sector plans and more recently in the development of the UT vision from Shaping2030 .

Gehoord

Deans, pfh oz, scientific directors, members of Executive Board.

Overwegende.

The University of Twente has the mission to be a University of Technology that puts people first (Shaping 2030, draft 5/9). We want to empower society to become digital, fair, and sustainable through sustainable solutions. People-Centered Technology has a leading role to play in providing solutions for complex societal challenges worldwide.

Besluit het CvB:

The Executive Board decides to ask the advice of the SB and the UC on the 'People-Centered Technology, Vision on Research 2020-2030'. The consent of the UC will be asked in the February cycle 2020 of the UC.

GRIFFIE URaad: (door griffie UR in te vullen)

Eerder in URaad aan de orde geweest?

- Nee.
- Ja, op

Conclusie toen:

Nadere toelichting: (Voor als presidium/griffier vindt dat één van bovengenoemde punten nadere toelichting behoeft)

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People-Centered Technology

Vision on Research 2020-2030, University of Twente

1. The mission of the University of Twente (September 5, 2019)

The University of Twente is here to empower society through sustainable solutions. We choose to be the ultimate people-first university of technology.

This mission summarizes our identity:

We empower: we want to enable society to achieve the goals it sets itself through wise use of science and technology. We contribute to a balanced understanding of scientific and technological developments and their impact on the community and the environment.

We provide sustainable solutions: we aim for thriving and resilient communities, with an eye for innovation opportunities, with authoritative expertise, and with a keen sensitivity to society's needs. Resisting the temptations of blind technomania as well as romantic nostalgia, we provide sound scientific alternatives.

We are a university of technology: our university is a public institution that serves society. We are accountable to society for the ways in which we use our academic freedom. We are responsible for ensuring that the power of science and technology is harnessed to achieve the best

possible impact in a changing world. We cherish our rich tradition of combining technical and social sciences in our core areas: Science, Technology, Engineering, Mathematics, Design, Management and Social Sciences.

Being 'people first' is our choice: we serve humanity, aware of the interdependencies between people and our planet, and aiming always to make sure that people can count on us. We have delivered technological innovations in the past, and we will be a part of the innovations of the future. We are aware that technologies change society, and that science's contribution changes with it. We make sure that our people have the time to grow and deliver quality work. Through this, we share our talent and resources on campus, in the region and with the wider world around us. In the choices we make, large and small, the wellbeing of people is our guiding principle.

2. Our research identity

Since the University of Twente's founding in 1961, we have committed ourselves to addressing economic and societal questions through pioneering combinations of technical and social sciences. The very reason of our founding was to strengthen the industrial legacy of our region and the well-being of its population. This means that a focus on the relevance and application of new technology for our main stakeholders is in the DNA of our staff, students and alumni. Our approach is characterized by out-of-the-box thinking to initiate change, progress and renewal. This led to our leading position in the Netherlands and Europe as entrepreneurial university. Our objective is to create value for and have impact on partners and stakeholders in the Twente region, the Netherlands, Europe, and society at large.

The University of Twente is among the handful of universities which have excellence across disciplines, a strong ability to work cross-disciplinary and a commitment to impact for society. These universities are capable of developing and sharing creative and paradigm-shifting research insights that can truly ensure the long term flourishing of society.

Research at the University of Twente is driven by a hybrid engine: our curiosity towards deep academic and engineering problems, and our drive to contribute to solutions for economic and societal challenges. We present an engineering approach to societal challenges by merging fundamental technological, social science research and design thinking. We have developed strong competences in the fields of science, technology, engineering & mathematics, social and behavioural sciences. We develop innovative methodologies supported by our research infrastructure and open science approaches. We link education and innovative research insights in all our programmes, especially in our offer on lifelong learning for professionals. Our campus, including both virtual and physical locations, will be living labs and meeting places. A place where students have reliable and innovative learning experiences with state of the art digital tools. Our campus acts as a hub from which we make connections with venues where societal challenges and questions are articulated. It is a safe and open environment for those who study, work, gather and live there. In combination with an inclusive research culture, the University of Twente attracts staff and guests from all over the world to collaborate in innovative research consortia.

Our research identity is characterized by the following core values: Pioneering & Entrepreneurial, Integrated & Inclusive, Networked & Engaged, Responsible & Accountable.

Pioneering & Entrepreneurial. We are pioneers and initiate the development of new research lines through small teams. We make a difference by not only pushing the research frontier, but pushing the frontier into new directions. We accelerate the introduction and embedding of innovative solutions. We see opportunities where others do not see them, take risks where nobody else dares and build a team to achieve ambitious goals together. We provide an environment that stimulates and motivates smart creative minds and creative smart people by giving excellent support.

Networked & Engaged. We develop relationships and engage in open dialogues and debates with students, alumni, peers, citizens, firms, governments and other stakeholder groups to understand their needs and preferences. We build dedicated networks and take leadership positions in such networks. We discuss our propositions and maximize our added value to partners, regions and society as a whole. Our relations and networks are authentic and about mutual ambitions and shared values.

Integrated & Inclusive. We support a research culture where everyone is appreciated regardless of his or her personal or cultural background. We stimulate the creative unfolding of talents. Our campus and facilities are a home for our visitors, partners, alumni, students and colleagues. We foster the integration of technical and social sciences, of applied and fundamental research, of qualitative and quantitative methodologies, of citizen science and laboratory research, to generate integral and systemic solutions.

Responsible & Accountable. We take responsibility for addressing economic and societal challenges in our research programmes. We enter into societal debates, based on our knowledge and research results. We are accountable for the potential impact of our research for stakeholders and their living environment. Responsibility and integrity in our research practices is part of our DNA. We are explicit about the norms and values that guide our actions and engage in open dialogues on the choices we make in our research.

3. Our research proposition for 2030

In the coming years we build on our existing strengths to take the next step in our evolution as a technological research university. People and their living environment are at the core of our education and research activities. Our research proposition does not provide a detailed list of themes and focal areas. Such an approach would undermine the creative and agile spirit of a research university and overly constrains our research leaders in shaping their activities. Neither does it seek to anticipate all opportunities and challenges ahead for our society in the coming years. Instead it will define the three major domains in which we engage as a people centered university of technology.

The people centered university of technology

In 2030, we are an engaged university, which creates networks and enters into dialogues and reciprocal relationships with a broad range of stakeholders. We are a reliable partner and involve our stakeholders, so we can further explore and really understand the complex challenges people and society are facing. We also pro-actively address and anticipate challenges such as problems associated with climate change, digitalisation, health and social divides. We conduct research with passion and in a resourceful and inclusive way. We entrust our researchers with the responsibility and freedom to develop research lines with the research domains of our university. We take responsibility to come up with new solutions to solve challenges and problems, act as pioneers and accept risks when we move on the leading edge. We are change leaders, empowering partners and stakeholders to bring about collective impact and durable changes, creating value for people and their living environment.

Our three main ambitions

As a university of technology we wish to enable society through the wise use of science and technology, to contribute to thriving and resilient communities, to fairness and wellbeing within a sustainable ecosystem. Based on our mission as a university and drawing upon our strengths we take responsibility for three ambitions for which society may hold us accountable: In 2030, we are known for our leadership in providing integrated perspectives and solutions for the mission domains Healthy Living & Better Healthcare, Connected Communities and a Sustainable Environment. Our ambitions for each of these are set out below.

Healthy Living & Better Healthcare.

Our ambition is to enable people to live a healthier life and make good healthcare accessible for everyone in case they need it. We pro-actively contribute to healthy living by developing technologies that support a personalized healthy lifestyle. We enhance healthcare with new technologies that focus on disease prevention, diagnosis, intervention and self-management. With a personalized approach and integrated knowledge on technologies, biomedicine, human behavior and healthcare systems, we contribute to an improved quality of life, and to economic and social innovations while enhancing the sustainability and accessibility of healthcare.

Connected communities.

Our ambition is to improve inclusivity and participation of people in society and to enhance human-machine interactions for the benefit of society. We do this by extending our knowledge of interactions between digital technologies, systems, individuals and collectives. We improve the connectedness of people and their environment by developing cyber-physical systems where software and hardware are combined into systems with embedded intelligence. We use our expertise in data science & artificial intelligence, hardware-software integration and human behavior to pro-actively work towards the fair embedding of novel digital technologies in society.

Sustainable environment.

Our ambition is to reduce the impact of climate change and create a sustainable living environment for people. We do this by developing sustainable integrated solutions on technologies, human behaviour, physical environments and ecosystems. We pro-actively

work towards a fair and sustainable distribution of benefits of new technologies, especially materials & sensing. We use our expertise in earth observation, water and energy management & technologies and the design of resilient environments to enhance the sustainability of living environments of people.

To realise our ambitions, we combine our research identity with our expertise in knowledge and technologies. With our engaged, pioneering, integrated and responsible way of working, we realize people-centered solutions (see figure 1).

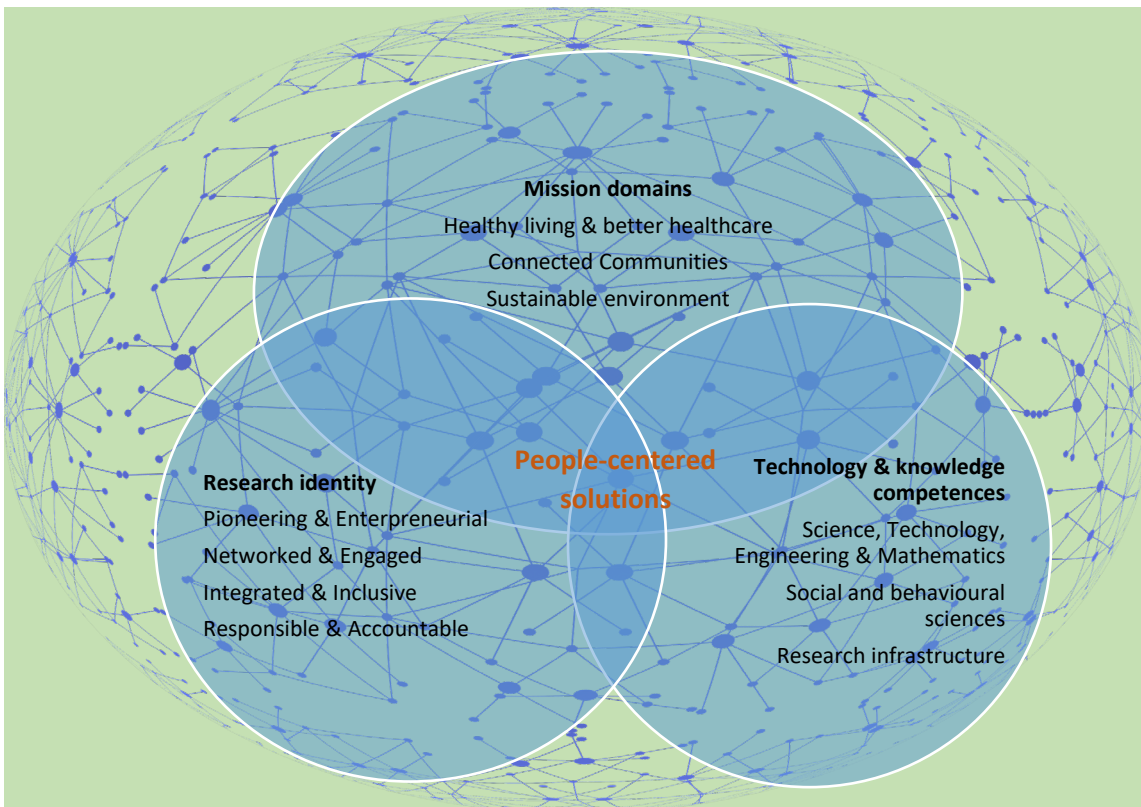


Figure 1: People-Centered University of Technology

4. How we will realize our vision

We realize our vision on research while taking into account trends and dynamics in our environment along the implementation of our strategy. Major trends include: research will be driven by societal challenges and demands in combination with the advancement of digitization and the global knowledge society. Value and impact of research will be generated via the accumulated power of networks. We see global challenges that require local actions. For the execution of our research vision, we take into account these and other developments. We will realize our vision via the realization of a non-limiting set of objectives.

A. The research unit is basis for strategy development and research quality management

We entrust our researchers with ongoing strategy development and execution at the level of research units. They interact on a daily basis with partners. In those interactions articulation of needs and challenges takes place. They are best positioned to translate this to the demands and needs for new knowledge and technology. Strategies of research units are aligned and add up to a recognizable research portfolio, which contributes to the three mission domains of the University of Twente and which are coordinated and articulated in our research centres, programmes, and institutes.

Objectives:

- *We empower our researchers and research leaders to transform knowledge and understanding, and to tackle complex societal problems in the domains of healthy living & better healthcare, connected communities and sustainable environment.*
- *We will foster strategy development and quality management cycles which empower research units and add up to a distinctive research portfolio of the University of Twente.*
- *We will choose distinctive areas within our three research domains that address societal needs and SDG's to invoke transformational changes for which the UT will be acknowledged and recognized worldwide.*

B. We invest in attracting, developing and keeping talents

We develop strong research groups and stimulate diversity in background and orientation: multidisciplinary groups, where talents in research, education, knowledge transfer, organization, engagement with society and collaborative skills in working across disciplines and organizations are clustered in teams rather than in single individuals.

Objectives:

- *We will employ an inclusive vision on talent in our recruitment, promotion and development activities which will accelerate our capability to add value in our three domains.*
- *We are a home and a host for established researchers.*
- *We support our research leaders in identifying and fostering research talents.*
- *We will align our master education programs with our profiling research themes to attract talented local bachelor students and talented master students nationally and internationally, based on the research reputation of the University of Twente.*

C. We employ our research infrastructure as a strategic asset to generate societal impact.

Our facilities act as centres of innovation. They act as strategic instruments to guide solution trajectories for scientific and societal problems in our mission domains in close collaboration with partners. They are breeding places for (inter)disciplinary research. In our operations, we stimulate facility-sharing: we welcome internal and external parties such as other knowledge institutes and firms within and outside of the Netherlands to optimize use of the facilities and increase relevance of the facilities.

Objectives:

- *We design roadmaps together with partners to develop and maintain infrastructure and infrastructure networks which enables our researchers and partners to implement solutions for our three domains.*
- *We develop an investment agenda which links infrastructure with our strategic domains*
- *We use our region as field lab to develop new technologies with regional partners that can be used as a launching pad to introduce technology with global impact: the global University of Twente.*

D. We foster excellence in disciplines and our capability to develop integrated solutions

Disciplines are the homes of researchers. We stimulate excellence in disciplines from natural, engineering and social sciences as well as local and global oriented research groups. We enhance our ability and reputation to work across disciplines and organizations to offer integrated sociotechnical solutions for societal problems and challenges with and for society.

Objectives:

- *We become even more Agile & Lean to act upon opportunities in our three domains by fostering a rich, relevant and excellent set of disciplinary chair groups.*
- *We will expand our ability to make a difference in societal impact via strategic instruments for impactful interdisciplinary collaborations.*
- *We will use the concepts of open science and citizen science to augment our cross-disciplinary research. We will involve not only companies, but also public organizations and citizens to define distinctive research questions in which we engage in.*

E. We take calculated risks while pioneering and enterprising new research directions

Walking on the leading edge implies risk taking. The potential to be lasting and truly game-changing emanates from high risk – high reward research. In our risk assessment of new opportunities, initiatives and research projects, we adopt an integrated perspective by including scientific, financial, legal, environmental, ethical and societal aspects.

Objectives:

- *We will support our research leaders to push boundaries and open-up new lines of research which promise transformative changes in our three domains.*
- *We will use innovative approaches to aid integrated risk assessment in pioneering activities.*

F. We take position in debates and act as an opinion-leader in society

We take responsibility for economic and societal questions in our mission domains and engage in societal and political debates. We share our expertise for the benefit of society and to learn and be inspired about views and perspectives of our partners: scientific peers, knowledge institutes, companies, governmental and non-governmental organizations and citizens. Engagement, integrity and code of ethics is incorporated into our research and knowledge transfer.

Objectives:

- *We will take our role as a university, as community of scholars, to support a thriving and sustainable society by entering into debates at physical and virtual venues.*
- *We will act as knowledge brokers between different parts of society related to our expertise in the domains of healthy living, connected communities and sustainable environment.*

G. We enhance our research impact by providing excellent support services for researchers

To realize our vision on research we allocate time for our researchers in what they do best. We offer dedicated support facilities throughout the whole research cycle including business development, grant and strategy support, project management, research support tools (ethics, open science, research analytics), library and information services. We strive for a healthy work-life.

Objectives:

- *We will organize and tailor our support services to optimize our research processes and practices.*
- *A quality management system of our research services will be developed with a focus on enabling dimensions: people management, process management and information and analysis, and attention to the results dimension: an understanding of researchers requirements and feedback on their perceptions of performance.*

H. We invest in the strengthening of strategic relationships

Engagement with stakeholders lies at the heart of our way of working. We enter into dialogues as a university but also in close collaboration with strategic partners. We strengthen our relations with regional partners and build strong networks connecting educational programmes, research strengths and knowledge transfer activities.

Objectives:

- *We will identify key global partners in our research domains who share our ambitions, goals, and vision.*
- *We will build and support partnerships on the basis of shared long-term objectives and roadmaps.*
- *We will develop and enrich our partnership with knowledge institutes, companies, as well as with governmental and non-governmental organizations and citizens.*