Research & Innovation

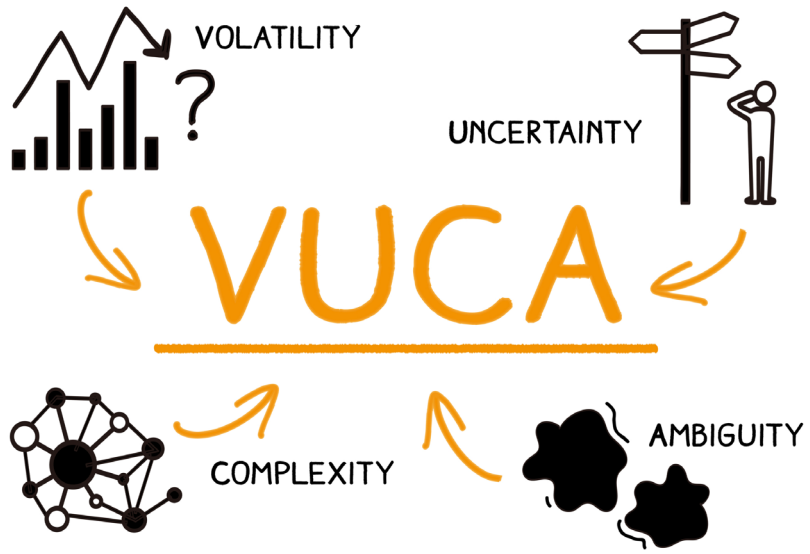
Strategy 2025 – 2030

UNIVERSITY OF TWENTE.

SETTING THE SCENE: STRATEGY IN A VUCA WORLD…

Our environment is **increasingly volatile, uncertain, complex and ambiguous.** When we drafted the previous strategy for our university, Shaping 2030, we did not (and could not) foresee various developments, such as with regards to geopolitics and technology, that have a tremendous influence now on us and our daily work. As organisation, we therefore need to become as flexible as possible, able to make use of new opportunities while not losing our long-term focus. We need to transform to **new ways of working** and a new organizational culture and structure **now.**

In this R&I strategy, **we set out to identify what is needed** the upcoming years to **reach our three specific R&I goals via three enablers.**



UNIVERSITY OF TWENTE.

READING GUIDE

Why this document?
On our way towards 2030, this document presents the **update of the 2020 UT Research Strategy**, building upon earlier work but taking into account the UT updated mission, vision and impact domains. Recalibrating our R&I strategy helps us making decisions in a dynamic and (sometimes) challenging environment.
This document

- creates a shared baseline to inform decision-making and other choices related to R&I;
- shows what we stand for, where we stand, and where we want to go as UT; and
- will be translated into an UT internal implementation plan.

How is this document structured?
We follow a why-how-what structure:

- **WHY** we do what we do: UT mission, vision and three R&I goals and enablers
- **HOW** we do what we do: our way of working and how we support our researchers
- **WHAT** we do: the contents of our work and the impact that we make

Introduction by Rector Magnificus Tom Veldkamp

As entrepreneurial 4th generation university of technology, we're right in the middle of society: we're committed to co-create value with and for our stakeholders.
Our focus on four impact domains (health, climate, safety & security, chip technology) helps us to concentrate our efforts, and work impact-driven.
However, the choices we made with moving towards a 4th generation university, staying true to our entrepreneurial 'high tech, human touch' identity and our four impact domains, also means that we partially need to change our way-of-working. We need gateways to society, and be clear about roles, responsibilities and expectations.
In this strategy, which feeds into our institutional plan 2026 – 2031, we set the course and our ambitions for our future UT.

CLIMATE

CHIP TECH

The Entrepreneurial University of Technology:
High Tech, Human Touch.

HEALTH

SAFETY & SECURITY

FOUR IMPACT DOMAINS

By 2030, we have increased our relevance by **(trans)disciplinary research and innovation excellence** on our four impact **domains**.

Education, research, innovation, and LLL are interconnected: together with our partners, we **valorise our talent, knowledge, and facilities for society.**

By 2030, our 'Team UT' is **equipped to collaborate and develop**, open and with society. We care for our talent, especially for our PhD and EngD candidates.

THREE R&I GOALS

THREE ENABLERS: TO MAKE MOST OF OUR IMPACT POTENTIAL, TOWARDS 2030…

1

We empower our people:
Excellent research and high impact innovation is recognised and rewarded

2

We capitalize on our strengths:
We have a structured and financially stable R&I portfolio which is aligned with UT impact domains and our (strategic) infrastructure

3

We have an efficient and effective support structure
for our R&I cycle with a Team UT mindset

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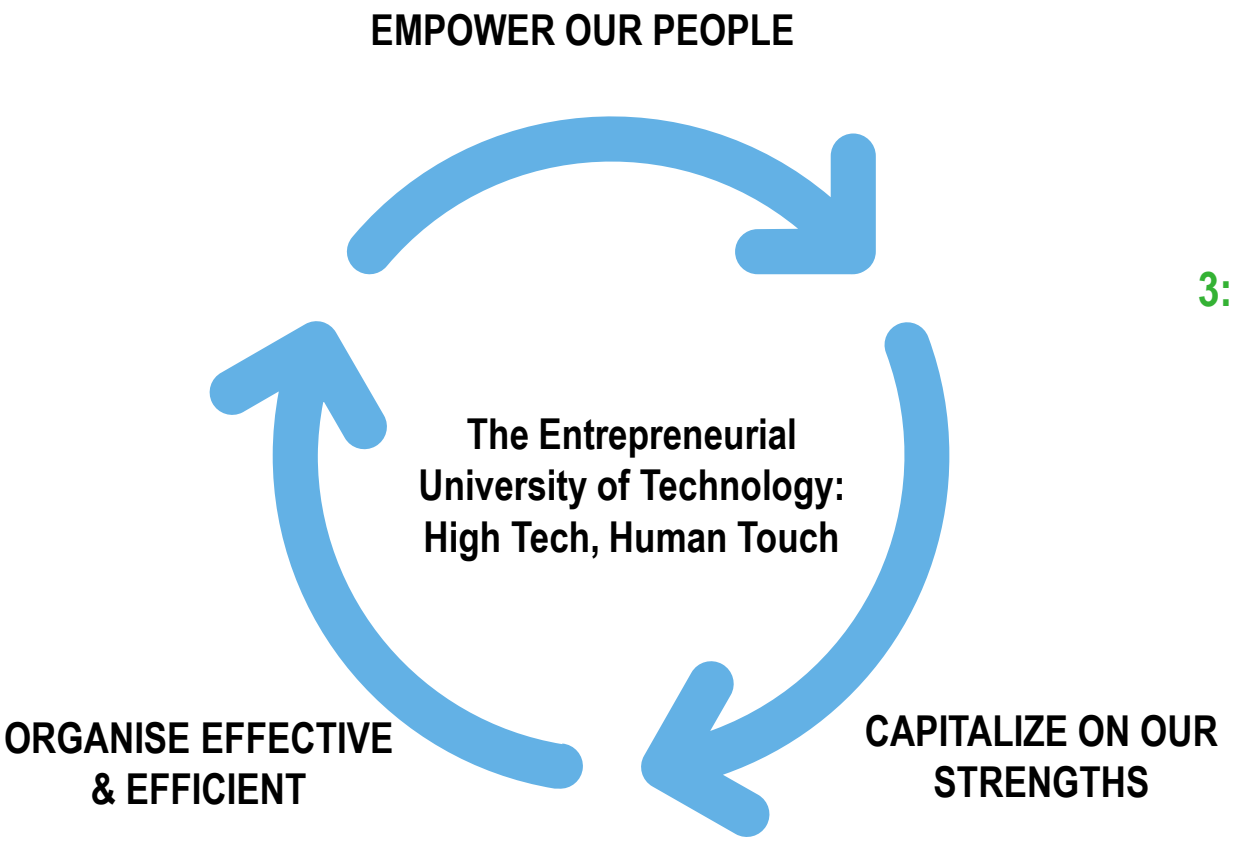
CONTENT



1: WHY we do what we do: UT mission and vision

2: HOW we do what we do:

a. Recognising and rewarding R&I talent
b. Revisioning R&I infrastructure and ecosystem
c. Future proof funding & financing
d. Taking care of our research quality
e. Open science and knowledge security
f. Scientific integrity, research ethics and collaborations

3: WHAT WE DO:

a. The Entrepreneurial University of Technology
b. High Tech, Human Touch: integration of disciplines
c. Focus on four impact domains and cross-overs:
    i. Health
    ii. Climate
    iii. Safety & security
    iv. Chip technology

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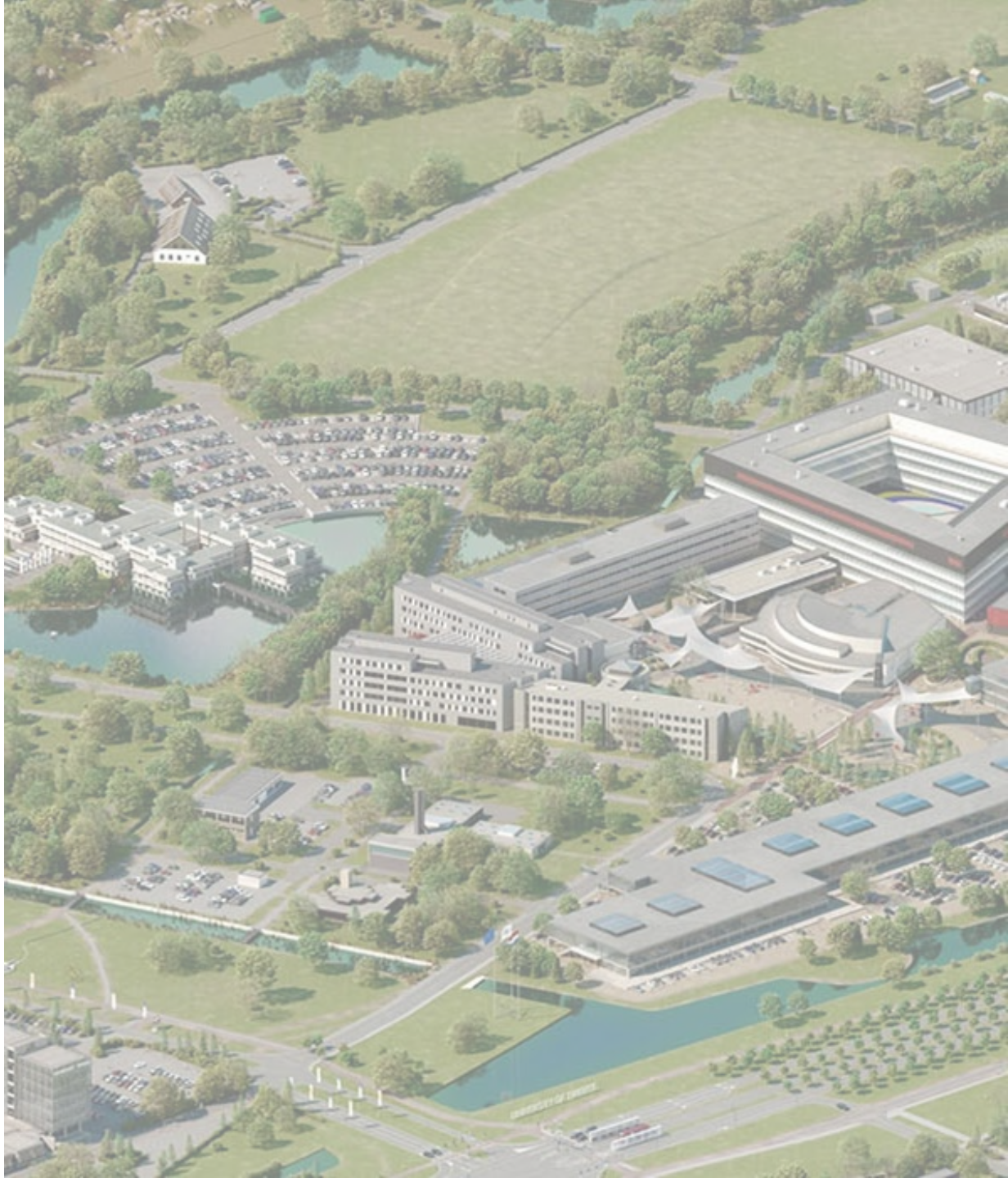
WHY

WE DO WHAT WE DO



We are the **entrepreneurial university of technology**,
educating the next generation of
'**High Tech, Human Touch**' innovators to build a better world **together**.

Since 1961, we are committed to combining our entrepreneurial mindset and personal approach with **technological innovation** across disciplines.

An **entrepreneurial** mindset is essential for our success: by constantly challenging ourselves and each other we can grow and innovate. We embrace a culture that prioritizes trust and responsibility over rigid hierarchies.

Our lush green University campus is a symbol of high-tech facilities and cross-industry innovation as well as a vibrant homebase of a **welcoming, open and inclusive** community of personal development, sports and culture. On that campus and further, we foster a community spirit to achieve our goals **together**. In our way of working, we are there for each other and ensure that everyone feels seen and recognized.

When it comes to our research, education and innovation activities, we strive to put the needs of society central – especially in our **focus** on climate, health, safety & security and chip technology.

United by our shared values and ambition to bring society forward, we are **'Team UT', the entrepreneurial university of technology.**

MISSION & VISION

UNIVERSITY
OF TWENTE.

SPECIFICALLY, FOR R&I THIS MEANS…

By 2030, we have increased our relevance by **(trans)disciplinary research and innovation excellence** on our four impact **domains**.

Our research has meaningful academic, economic and societal impact. This means that we put the **needs of society** at the centre. The strong **transdisciplinary collaboration** of social sciences & humanities with science and engineering disciplines sets the UT apart and is essential. Building on our **innovation excellence** in the impact domains, we distinguish ourselves and attract talent, resources and partners.

Education, research, innovation, and LLL are interconnected: together with our partners, we **valorise our talent, knowledge, and facilities for society.**

We are committed to '**innovation for society**', as in valorising all talent, knowledge, network and facilities' of our institution. This includes striving towards a **4th generation university**, in which we work with an integrated approach such that all activities related to the university core tasks (education, research and innovation, life-long learning) are aligned in symbiotic manner and will strengthen each other.

By 2030, our 'Team UT' is **equipped to collaborate and develop**, open and with society. We care for our talent, especially for our PhD and EngD candidates.

We work as a **team**. An **entrepreneurial** mindset is essential for our success.
We will actively pursue opportunities with our local, national and international partners to create new opportunities here in the region and elsewhere.
Our research is done with rigor, **as open as possible, as closed as needed.**
We aim to reach new audiences and push the scale of our contributions' influence.

Please note: *all of the above is linked to our "Reinventing UT" seven principles.*

UNIVERSITY OF TWENTE.

HOW

WE DO WHAT WE DO

A. **RECOGNISING AND REWARDING R&I TALENT (I)**

TALENT DEVELOPMENT PRINCIPLES

- Recognition of **talent diversity**: at UT everybody has a talent and a potential to develop
- Individual talent development is considered *within* team development & performance
- Individuals and teams should assess and be assessed in light of their **own goals that are related to the unit/faculty/UT vision**
- The **narrative** reflection is dominant in performance assessment, **above quantitative metrics**
- Development of **leadership** is essential for identifying and cultivating talent
- Leaders are assessed in relation to **performance and well-being** of their teams

TALENT MAP 3.0

With implementing Recognition & Rewards at UT, we do not lower our ambitions, ***we strive for excellence*** *– but we enable our colleagues to* ***focus their efforts*** *on specific domains.* (Talent Map 3.0)

In line with the Recognition and Rewards (R&R) principles, appreciation is given to a diverse set of activities and careers of our researchers. Academic powerhouse, innovative entrepreneur, co-creator; different academics have different strengths: R&R acknowledges and formalizes this.
Since 2020, UT has committed to integrating R&R in talent policies, sprouting already the 3rd edition of the Talent Map.
This map serves as a basis for reflection and is the starting point of further implementation of R&R in the faculties.

A. **RECOGNISING AND REWARDING R&I TALENT (II)**

OUR VISION ON R&I TALENT

In 2035, R&I roles at the UT will be **transdisciplinary, impact-driven, digitally skilled and firmly embedded in (European) collaboration structures**. Roles will shift further from traditional individual academic work to a team-oriented, socially involved and technologically supported knowledge practice, in which hybrid academic teams and functions are common. In addition to analytical and creative thinking, our R&I professionals therefore need

a. A **solid technological basis** (such as the top three skills outlined by the World Economic Forum: AI & big data, networks & cybersecurity, technological literacy),
b. **Self-efficacy** (resilience, flexibility & agility; motivation & self-awareness) as well as
c. **Collaboration** (leadership & social influence, empathy & active listening, teaching & mentoring) skills.

CARING FOR TEAMS & INDIVIDUALS

We **prioritise team success**, not only in recruitment but **across the whole employee journey**: team science is key, including a **strong role for support staff.** To strengthen the link between core tasks, our **top researchers also teach.**

Ambition:

In 2026…

- we have a **strategy for attracting and retaining talent, based on the Talent Map and with focus on team science**
- we have a **strategy for UT internal as well as UT external prizes and awards** (with more attention for teams & impact domains)
- we (as researchers and research support) jointly work on and equip ourselves with **AI knowledge and guidelines**.
- our vision on R&I talent is translated into a program for PhD and EngD candidates, focused on well-being, talent development and to finish within time

B. REVISIONING R&I INFRASTRUCTURE AND ECOSYSTEM

STRATEGIC INFRASTRUCTURE

Our research takes place in our (living) labs, supported by technicians, in state-of-the art facilities on faculty, cross-faculty and strategic level. Physical and digital infrastructure is a **unique selling point** of our university and attracts talent.

Ambitions:

In 2026…

- We have an up-to-date inventory (incl. depreciation and re-investment overview) of all UT infrastructure.
- We work with uniform spending rules across faculties and departments.
- Key UT research infrastructure facilities are nationally aligned and prepared to effectively respond to funding opportunities.
- In appointing new PI's and starting new initiatives, attention will be paid to a good use of the existing infrastructure.
- The UT has a vision on areas that warrant strategic investments in infrastructure. Progress is discussed twice a year in the University Committee for R&I.

ECOSYSTEM

Building our ecosystem with **regional, national and international** partnerships is crucial in a VUCA world.

Pragmatic and opportunistic, we aim to **collaborate even more**, by pooling resources for R&I, sharing infrastructure and identifying **mutually beneficial funding opportunities**.

Our **strategic collaboration framework** provides guidelines to make informed decisions on our partnerships.

Ambitions:

In 2026…

- We have a renewed focus in support of our partnerships based on impact domains.

C. **FUNDING & FINANCING**

FUTURE PROOF FINANCING AND FUNDING

Besides the funding we receive from the Dutch government to perform our core tasks, we are dependent on external funding via large national and international programs and by collaborating with businesses and other societal stakeholders. **Not only steering on attracting funding, but also on project result is a key priority** for our university in the upcoming years to get financially healthy. Decreasing our costs while investing in our people and infrastructure is a delicate balance, for which we need up-to-date information and horizon scanning.

Ambitions:

In 2026,...

- We have a **coherent overview of all R&I projects in the pipeline** and regularly reflect on success rates (and best practices) in our committees.
- We steer on a **net positive funding mix** at an appropriate aggregation level (e.g. faculty departments) and across all sources of funding, enforced by the faculty board (which is supported herein by the faculty finance department).
- We have agreed on a **R&I charter with relevant information, formats and working agreements** which is followed by all PIs, support staff and higher management. Via this charter, we work with **uniform spending rules across faculties and departments** (incl. specific attention for infrastructure), and we have **uniform processes for project acquisition activities.**

D. **TAKING CARE OF OUR RESEARCH QUALITY**

QUALITY ASSURANCE

We are committed to **conducting and upholding high quality research** and therefore implement a **periodic research evaluation cycle**.

This cycle includes evaluations based on the Dutch Strategy Evaluation Protocol 2021 – 2027, as well as annual talks on research between rector magnificus and vice deans of research.

Ambition:
In 2027,
We have **updated our vision on, and implementation of the research evaluation cycle** based on the new SEP and organized our support structure accordingly.

POSITION ON RANKINGS

The UT has joined the UNL and CESAER working groups on rankings and decided to

(1) experiment with QS sustainability and THE impact rankings starting in 2024, as well as to
(2) prepare a long-term exit strategy for the classic rankings (league tables) QS, THE and ARWU. Where exits are possible, they can gradually take place in 2024-2026.

The UT will develop **alternative methods for benchmarking and profiling** and will not derive criteria for internal assessment from rankings.

E. **OPEN SCIENCE AND KNOWLEDGE SECURITY I**

OPEN SCIENCE

OS represents the international aim to **make scientific knowledge openly available, accessible, and reusable for everyone**, and to promote scientific collaboration for the **benefit of science and society** (UNESCO Recommendation on Open Science, 2021).

The UT committed to OS by signing CoARA, and by signing DORA and the Barcelona Declaration via UNL. In a VUCA world with changes of the researcher profession and landscape on the horizon, OS as a **catalysator of change** of is getting even more important. The UT reflects on OS status quo in research evaluations and recently put OS more prominently in the R&R Talent Map 3.0. However, **we are not there yet**. Therefore, we formulate a set of actions.

Ambition: In 2026,

- We have a **UT-wide OS strategy** drafted by S&P, LISA, faculties and OSCT. This strategy ties together all OS initiatives currently taking place at the UT, defines strategic priorities for each of the OS pillars* , and guides decisions on which initiatives to support as institution or as part of larger networks (UNL, SURF, UKB, 4TU)
- We continue working towards **100% Open Access** (OA) while recognizing that the OA publishing landscape has changed, that we need to focus on quality over quantity and on changing publishing practices at the UT (with attention for questionable / predatory publishing practices).
- We have established UT guidelines for **Research Software Management** to accompany the **Research Software Policy.**
- We have a **UT policy on knowledge security** and a Knowledge Safety Team. Knowledge security is as much as possible aligned with other relevant policies.

In 2027

- **All faculties have an OS plan** informed by the UT strategy. These plans include OA publishing, copyright and research software strategies and further clarify faculty-specific ways to connect OS and R&R.

E. OPEN SCIENCE AND KNOWLEDGE SECURITY II

KNOWLEDGE SECURITY

'As open as possible, as closed as necessary'.
This means open by default, unless:

- open access to particular databases, source code, technology, materials, training, instruction, or facilities is regulated or prohibited,
- publication of specific details is legally restricted (e.g. export control, sanctions, GDPR),
- the above is legally allowed, but has a high risk of (future) misuse by the partner, other than the partner, or in another context,
- other agreements are made between partners.
- this has an undesired effect on digital or data sovereignty

+ The challenges in the relation between open science, the openness of science, and knowledge security are elaborated in: 'Keeping science open?' (CESAER, Oct. 2023)

How do we address knowledge security?

+ Knowledge security policy and procedures at the UT can be found here.

+ Measures to restrict or enable open science in various stages of the research cycle can be divided in: (a) regulatory measures (b) technological measures and (c) research data management

+ For some entities or countries, international sanctions are in place that restrict technical assistance or knowledge transfer. Such restrictions can be searched by country

+ Knowledge security is part of the pre-employment screening policy.

F. SCIENTIFIC INTEGRITY, RESEARCH ETHICS & COLLABORATIONS

SCIENTIFIC INTEGRITY

Our R&I practices uphold standards of integrity: we do our work in a rigorous, robust and accountable manner. The UT has a **central Scientific Integrity Committee** (CWI) to secure a safe environment and process to handle scientific integrity complaints. To keep our community informed, and work on continuous professional development in this field, the House of Integrity serves as the one-stop-shop for integrity-related questions and trainings.

To support this way of working, the UT installed **a R&I charter** ensuring all colleagues working on R&I activities to be well-informed, aware of available formats and guidelines, and working based on agreements necessary for an efficient and effective R&I cycle.

RESEARCH ETHICS & COLLABORATIONS

Ethical review of research involving human subjects and/or personal data at the University of Twente is considered as **common practice and mandatory**. Our four disciplinary ethics committees continuously develop themselves on current matters (e.g., AI and use of social media data). Ethics and integrity also extend to the ecosystem around us: who do we work with, and why? The **Working Group Moral Challenges** is developing a framework, guidelines and process for moral dilemmas that go beyond scientific integrity, for instance on sensitive collaborations. UT is collaborating on national level too.

Ambition:

In 2026, we have revised our research ethics procedures and – for more challenging cases - an **overarching committee** with a pool of experts for a range of topics, and specific attention for academic freedom.

WHAT

WE DO

A. THE ENTREPRENEURIAL UNIVERSITY OF TECHNOLOGY

An **entrepreneurial mindset** is essential for our success. That includes risk taking, financial accountability and the courage to stop activities.

We are committed to '**innovation for society**' and have anchored the responsibility for valorization within our organization.

Ambition: In 2027,
All researchers have a **plan on the next steps towards valorization** of their research and are **recognized and rewarded** for their valorization activities.

We have a renewed **efficient and effective support system** for valorization throughout all phases from initiating collaborations till knowledge transfer, and (in case of a spin-off) the support after incorporation.

What do we mean with '**entrepreneurial**'?

'Not afraid to **take risks**,

close to the 'customer',

not hierarchical but **creative** and

unconventional.'

Harry van den Kroonenberg, 1986

B. **HIGH TECH, HUMAN TOUCH**

STRONG DISCIPLINES

We are a technological university with a social science and humanities faculty. We stay committed to **our foundation: our strong disciplinary knowledge.** We use this knowledge to both further develop the disciplinary academic field, as well as to contribute **tackling societal challenges** which ask for crossing and integrating disciplines. Our work relates to identified Key Enabling Technologies and explicitly aligns with agendas such as NL National Technology Strategy, Topsectoren and EU Competitiveness Agenda. A symbiotic relationship with education and LLL (within and across disciplines) is key at UT. **Ambition:** In 2030,…

- We **mainly do projects** that contribute to our unique proposition: the **integration of social sciences & humanities with science and engineering**.
- 80% of the PIs **commit** to working on our impact domains. The Strategic Board agrees on how to measure progress and regularly reflects and acts accordingly.

INTEGRATED TO ADD TO IMPACT DOMAINS

Chemistry

Computer Science

Geo & environmental sciences

Health

Mathematics

Mechanical, civil & electrical engineering

Physics

Social Sciences & Humanities

→

SAFETY & SECURITY

HEALTH

CLIMATE

CHIP TECHNOLOGY

C. **FOCUS ON FOUR IMPACT DOMAINS & CROSS-OVERS**

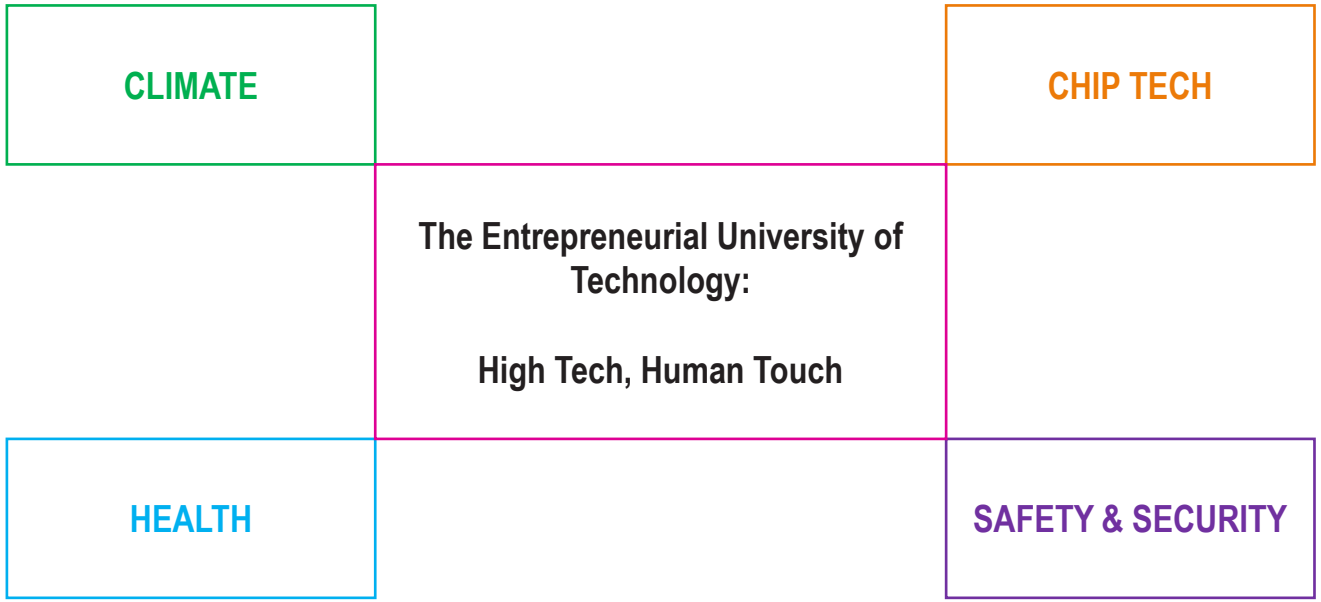
By working with UT-wide impact domains…

1. We can decide where best to **focus the organisation's finite resources** to meet **strategic objectives**, considering the business as a portfolio of activities and making trade-offs across the portfolio
2. We have an instrument
   - aiding **cross-faculty, cross-institute** coordination
   - to develop **impact-driven propositions**, followed by investment and funding acquisition strategy
   - enabling a long-term **programmatic** approach, with different program lines running at different speeds and in different phases of development (from sprout to execution), incl basic research up to embedding in society
3. We can make **joint choices** in investments, partnerships, capacity priority setting
4. We are adaptive, instead of bureaucratic
5. We commit to the development of various **ecosystems**

Criteria for impact portfolios therefore are:

1. Responding to **external needs**
   - Roadmap where external parties are engaged and committed
   - Related to public policy development
2. Involvement and commitment of **internal community**
   - Staff from several faculties/institutes involved (complementary expertise, recognisable, track record, figure head,..)
   - Support from management of institutes and at least two faculties
3. **Programmatic** approach
   - Roadmap, financial plan incl. funding acquisition strategy, lobby, ..
4. **Integral** approach
   - Linking R&D (incl. infra), valorisation/innovation, and education and/or LLL

C. FOCUS ON FOUR IMPACT DOMAINS & CROSS-OVERS



Our faculties collaborate and actively contribute to four impact domains, together with our institutes and centres. To redesign our impact domain way of working, we need clarity towards our external stakeholders, a strong gateway function for all impact domains and teams of business and academic leads.

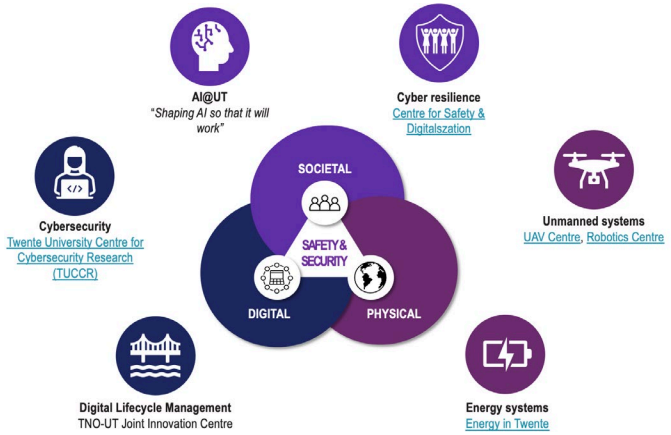
Ambition:

In 2026, we have clarified roles and responsibilities with regards to way of working on our impact domains.

Please note: *the following slides are work-in-progress by the scientific directors of all three UT institutes and the strategic director of the Climate Centre and will be further worked on during the upcoming months, in consultation with the faculties. Cross-overs relate to work between impact domains, and with related disciplinary work.*

SAFETY & SECURITY

RESEARCH & DEVELOPMENT



EDUCATION & TRAINING

BMS	Business Adminsitration
	Communication Science
	Industrial Engineering and Management
	Public Administration
EEMCS	Applied Mathematics
	Computer Science
	Business Information Technology
	Embedded Systems
	Robotics
ITC	Geo-information Science and Earth Observation
	Spatial Engineering
	Humanitarian Engineering
ET	Civil Engineering and Management
	Mechanical Egineering

INNOVATION & COLLABORATION

- TNO (MBE, ISP, DSS)
- Northwave
- CVD (Apeldoorn): Achmea, Kadaster, Belastingdienst
- Thales & friends
- SMEs in East NL
- Various knowledge institutes

Note: more to follow in context of Defense and manufacturing to increase EU strategic independence

INFRASTRUCTURE

- TUCCR (next edition)
- SOC setup aligned to CVD
- Data- and compute facilities

GOALS FOR THE DOMAIN

Using the term "program" as a coherent collection of projects:

- Having set up (research) programs on: Safe Societies, Robust digitalization, and Safe Engineered Systems and Environments. Projects are externally funded, according to healthy financial metrics
- Relatively strong involvement of regional partners (public, private)

LINK WITH EXTERNAL AGENDAS

EU Draghi report

Nationale Technologie Strategie
Nederlandse Cybersecuritystrategie
Nationale Cybersecurity Research Agenda

AIC4NL
Topsectoren ICT and HTSM
NATO Diana; EU Defense Fund
KIA Veiligheid, KIA Digitalisering,
EU Horizon Europe (EIC, Clusters 3 and 4)

TEAM & CONTACT

https://www.utwente.nl/en/digital-society/contact/

SAFETY & SECURITY

HEALTH

RESEARCH & DEVELOPMENT

Interfaculty Research Areas:
Imaging & Diagnostics
Bioengineering Technologies
Design and manufacturing of Medical Devices & Robotics
Medical Physiology & eHealth technology
HealthTech in Society

EDUCATION & TRAINING

Technical Medicine (Ba/Ma)
Health Sciences (Ba/Ma)
Biomedical Engineering (Ba/Ma)
Psychology (Ba/Ma)
Other Mastertracks with health focus
LLL – TechMed Academy

INNOVATION & COLLABORATION

Academia, TO2 & Healthcare:
4TU.Health, TNO, Radboudumc, UKM, UMCG, MST, ZGT, Rijnstate, DZ, Isala
Industry:
MedTech Twente, Siemens Healthineers, Demcon, Terumo, Teledyne, SME's …
Spin-offs:
~ 4 per year

STRAT. IMPACT PORTFOLIOS & INSTRUMENTS

Moonshots:
MedTech Delta NL: Hospital of the Future
Profiling Impact Centres (with Strategic Roadmaps):
Organ-on-a-Chip, eHealth Technology, Cardiovascular Health Technology, Health Robotics, Womens Health, Healthcare Transformation, Next Gen Imaging
Seed funds:
PIHC/TURBO

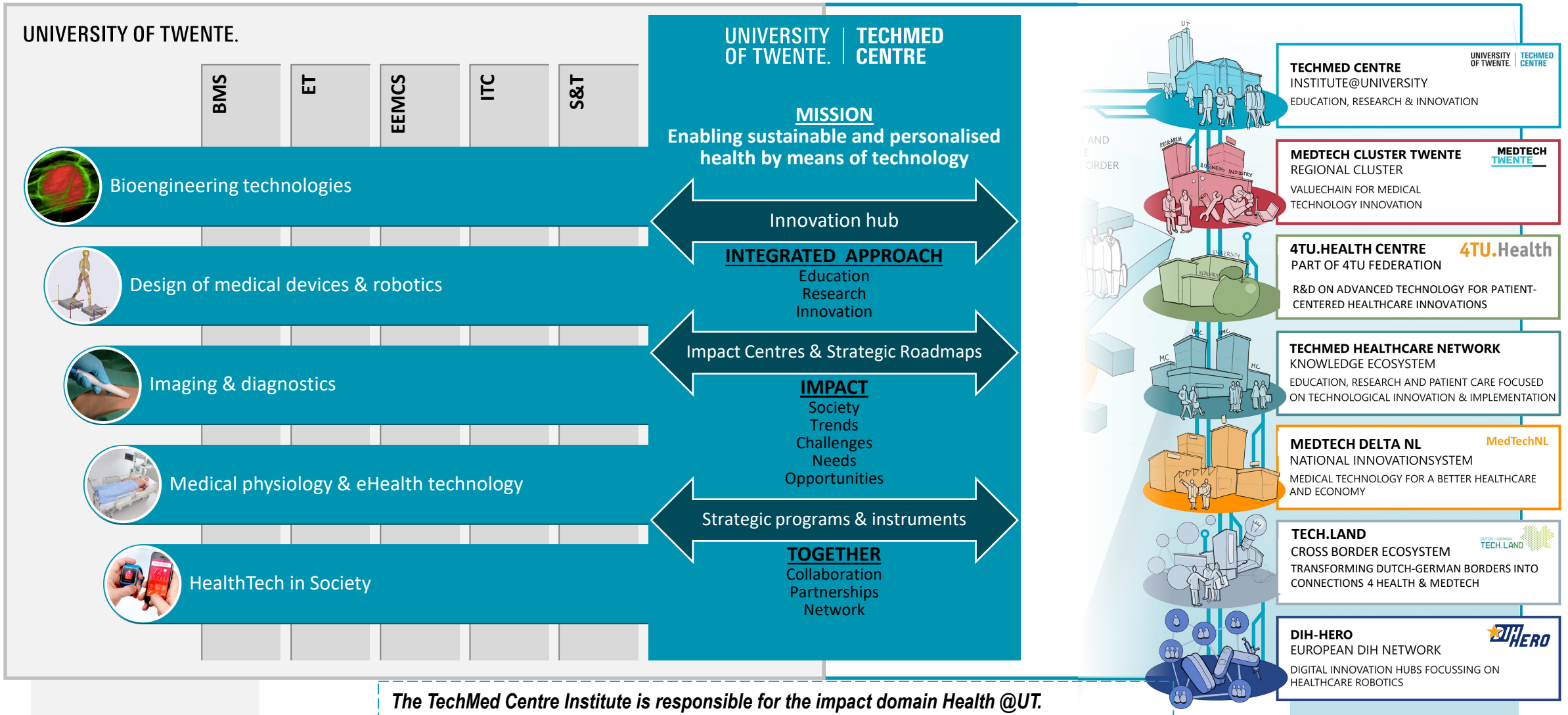
INFRASTRUCTURE

Shared Facilities:
Simulation centre, bioengineering labs, imaging labs, e-health house, robotics labs
TechMed Research Support:
Funding strategy & Grants, Ecosystem & Partnership development, Implementation & Impact development, Research with Human Subjects and Medical Devices, Events & Communication

Key trends steering R&I:
- → *Planetary Health (with Climate)*
- → *Defence (with Safety & Security)*
- → *Staffing challenges in healthcare*
- → *Changing consumption & limited capacity to change in healthcare*

UNIVERSITY OF TWENTE.

Figure 1: TechMed Centre Strategy & Core principles

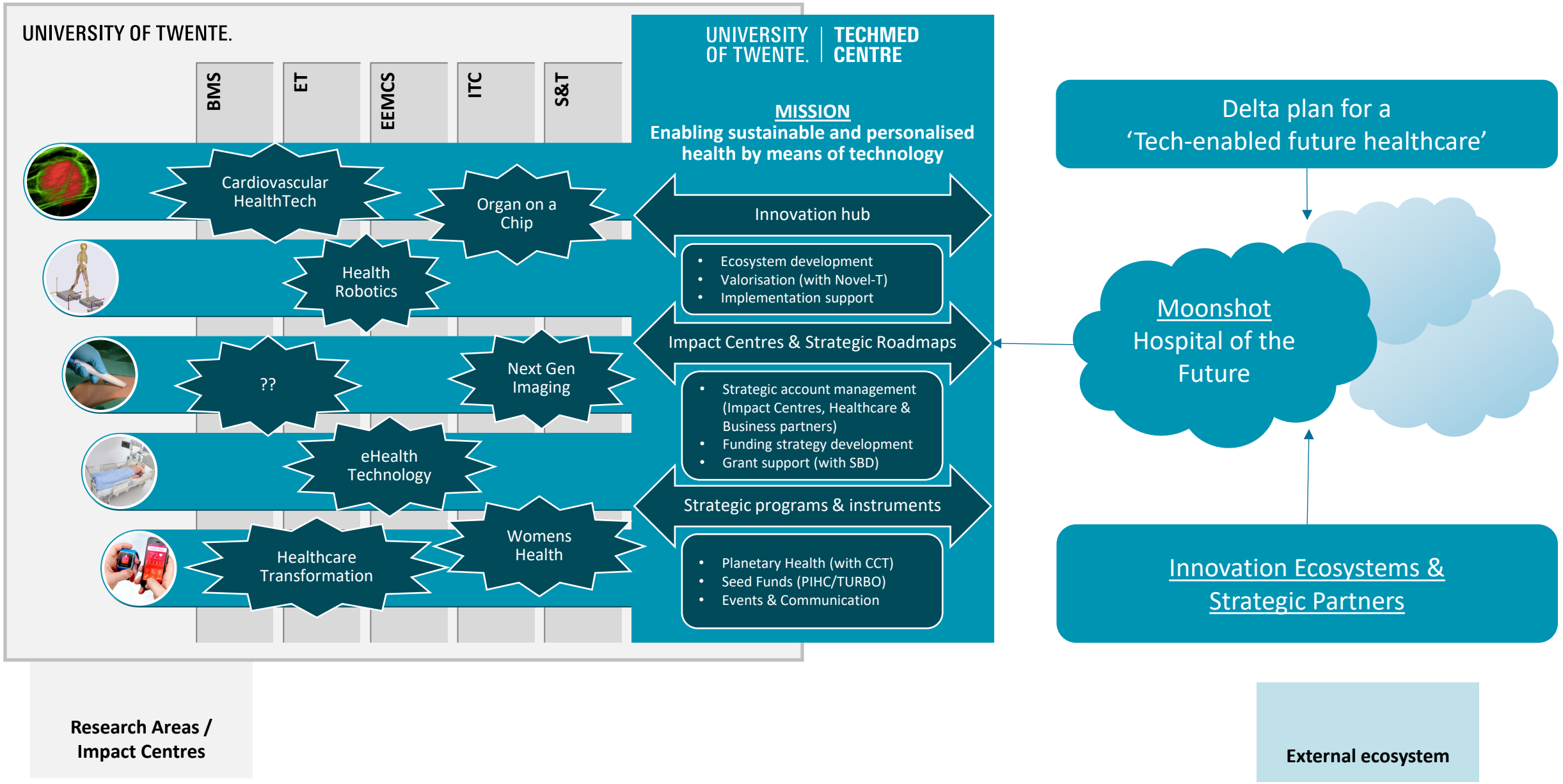


Internal ecosystem / Research areas

The TechMed Centre Institute is responsible for the impact domain Health @UT. It serves as the interface with the internal and external innovation ecosystems. By its impact strategy and ensuring innovation excellence, this provides an USP for attracting talent, partners and (financial)resources for education & research.

External ecosystem

Figure 2: Strategy implementation: approach, activities and instruments



GOALS FOR THE DOMAIN (2YR)

- Moonshot initiative ‘Hospital of the Future’, with leaders from healthcare and industry, that provides guidance for strategic roadmaps and prioritization;
- Implementation of way of working with ‘Profiling Impact Centres’ and ‘strategic roadmaps’ with UT constraints (governance & budgetary)
- Further establishment as leading innovation hub in the health domain (both internal, national and international);
- Increase in 3rd MS based on action plans per faculty for health domain;
- Capitalizing on opportunities related to NTS-ImagingTech & defence;
- UT as leading institution in MedTech in NL within HTSM by securing +2MEuro funding / yr in HTSM-MedTech;
- MedTech@Twente recognized as leading cluster in NL and key player in EU
- At least 2 pilot projects with alternative valorization models in the MedTech sector with partner companies, resulting in new business activity;
- Train at least 400 new professionals and researchers in LLL;
- Flourishing HealthTech Nexus partnerships: realistic actionplan & ambitions;
- Renewed partnership MST & Rijnstate;
- Intensified collaboration UKM & Tech.Land: 3 new projects started;
- TechMed infra is well embedded in UT policy for large scale infrastructures;
- IHI/GWI applications for infra investments (e.g. phantom lab).

LINK WITH EXTERNAL AGENDAS

- EU Draghi & Letta reports & EU compass to competitiveness
- Nationale Technologie Strategie
- Topsectoren HTSM and LSH
- KIA Gezondheid & Zorg and KIA Sleuteltechnologieen
- EU Horizon Europe
- Sectoragenda MedTech: de route naar toekomstbestendige gezondheidszorg (FME)
- Integraal Zorgakkoord (en diverse gezondheidszorg rapporten)

TEAM & CONTACT

- www.utwente.nl/techmed
- M.M.Rovers@utwente.nl / R.Burie@utwente.nl

HEALTH

UNIVERSITY OF TWENTE.

CLIMATE

RESEARCH & DEVELOPMENT

Advanced Battery Technologies, Photovoltaics: Materials and Integration; Smart Energy Management Systems; Heat Transition and Geothermal; Sustainable Data Centers; Negative Emissions; Green Hydrogen; Wind Tech
Climatic Tipping Points; Digital Twins and Planning Support; Transition Studies; Governance and Public Policy; Integrated Water Management; Drought and Water Scarcity; Urban Heat Stress.
Sustainable and Smart Industry and Manufacturing.

EDUCATION & TRAINING

Minors: Energy Transition Perspectives/Challenges; Circular Economy Transition; Global Crises, Local Action, Sustanability and Climate Physics
MSc's: Spatial Engineering, Humanitarian Engineering, MSET, Philosophy of Science, Technology and Society, MEEM, M-Geo
BSc+ Specialisations:
Conflict, Risk and Safety (Psychology), Area Development (Civil Engineering), Chemical Science and Engineering

INNOVATION & COLLABORATION

Regional Collaboration:
Province of Overijssel, de Twentse Golf, Vechtstromen, Vitens, OostNL
Innovation Ecosystems:
Battery Centre, Fraunhofer,
National Collaboration: KIN

Key trends steering R&I:
- → *Planetary Health (with Health)*
- → *Climate Proof Infrastructure and Agriculture*
- → *Just Transition*
- → *Circular Economy and Regenerative Systems*
- → *Carbon Dioxide Removal*
- → *Scaling up production for energy transition*

STRAT. IMPACT PORTFOLIOS & INSTRUMENTS

Climate & weather extremes:
Climate Proof Agriculture
Urban Planning and Governance
Climate Tipping Points
Drought & Water scarcity
Disaster Resilience
Energy transition & innovation:
Energy storage
Energy efficient computing
Smart industry
Green Energy Production
Smart Energy Systems
Sustainable heating & cooling

INFRASTRUCTURE

UT Field Lab and UT Slim Park: Testbeds for real-world experimentation (R&E) and co-creation with stakeholders.
DISC (Design and Interactive Space for Co-creation): Spatial Decision and Planning support for climate solutions.
DesignLab & Novel-T: Facilitate valorisation, entrepreneurship, and societal engagement.
UT Energy Group software stack: Collaborative open-source software stack ecosystem for R&E and spin-off/knowledge transfer.
Circular Economy Platform Twente: a community of practice for circular economy transition at regional level
Advanced Manufacturing Centre

GOALS FOR THE DOMAIN

For the upcoming two years, what do you want to achieve with the portfolios? When are we successful in this domain?

- Expanded scope of the primary impact portfolios and clear niche for emerging portfolios.
- Strengthened collaborations with international, national and regional stakeholders, including industry partners and governmental bodies.
- Increased visibility and impact of UT's climate initiatives through strategic communication and public engagement.
- Enhanced capacity of the Climate Centre to support transdisciplinary research and education.
- Secure programmatic level funding from national and international sources to support the growth and sustainability of the impact domain.

LINK WITH EXTERNAL AGENDAS

Dutch Climate Research Initiative (KIN)
Ministry of Climate and Green Growth:
Sustainable Development Goals (SDGs): SDG 13 (Climate Action), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), SDG9 industry, innovation, and infrastructure, SDG12 sustainable production and consumption, and SDG17 partnerships
Nationale Technologie Strategie
Vechtstromen Innovation, deTwentseGolf
NationalKlimaatAdaptatie Strategie
Integraal Nationaal Energie en KlimaatPlan 2021-2030
EU Horizon Europe (Primarily Cluster 5, 6)
Provincie Overijssel – Water Bodem Sturend
4TU
European Green Deal, EU Water Resilience Strategy, Paris Agreement

TEAM & CONTACT

https://www.utwente.nl/en/climate-centre/

CLIMATE

CHIP TECHNOLOGY

RESEARCH & DEVELOPMENT

- Semiconductor technologies
  - Optical systems and integrated photonics
  - Quantum technologies
  - Mechatronics and optomechatronics (advanced manufacturing)
  - Biomolecular and cell technologies (organs on chip)
- Artificial intelligence and data science (neuromorphic computing)

EDUCATION & TRAINING

BSc & MSc:

- Mechanical Engineering
- Industrial Design Engineering
- Applied Physics, NanoTechnology
- Electrical Engineering
- (Technical) Computer Science
- +MSc Embedded Systems; Robotics

INNOVATION & COLLABORATION

- Main partnerships,
  - spin-offs,
  - NanoLabNL,
  - PITC,
  - UT-TNO,
  - NGF's,
- National police, etc

STRAT. IMPACT PORTFOLIOS & INSTRUMENTS

Chip design:
Electronic integrated circuits (EIC)
Photonic integrated circuits

Chip equipment:
Production
Metrology

Chip materials:
Piezo MEMS
Photonics
Quantum
Energy efficient computing
Microfluidics / biosensing

INFRASTRUCTURE

- NanoLab (significantly used by external partners),
  - XUV Lab,
- New Origin (set up by UT holding & MESA+)

GOALS FOR THE DOMAIN

For the upcoming two years, what do you want to achieve with the portfolios? When are we successful in this domain?

Our ambition is to secure on each of the domains/subdomains:

- Be agile to successfully grab opportunities
- Successfully running the strategic research programmes
- Securing large research, education and/or innovation programmes
- positioning of UT people in the relevant platforms linked to the domain
- Update the large scale infrastructure to stay fit for the future

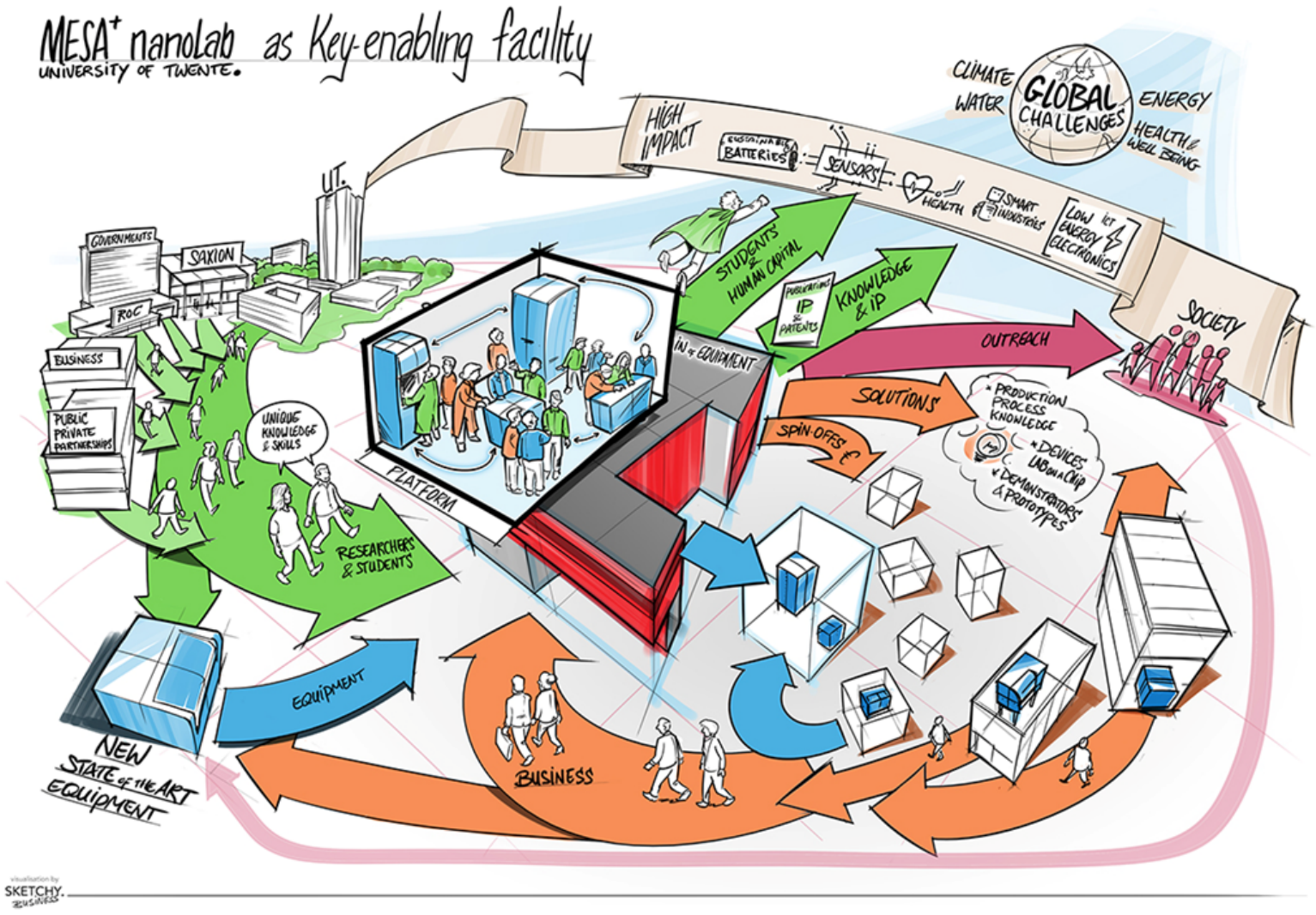
LINK WITH EXTERNAL AGENDAS

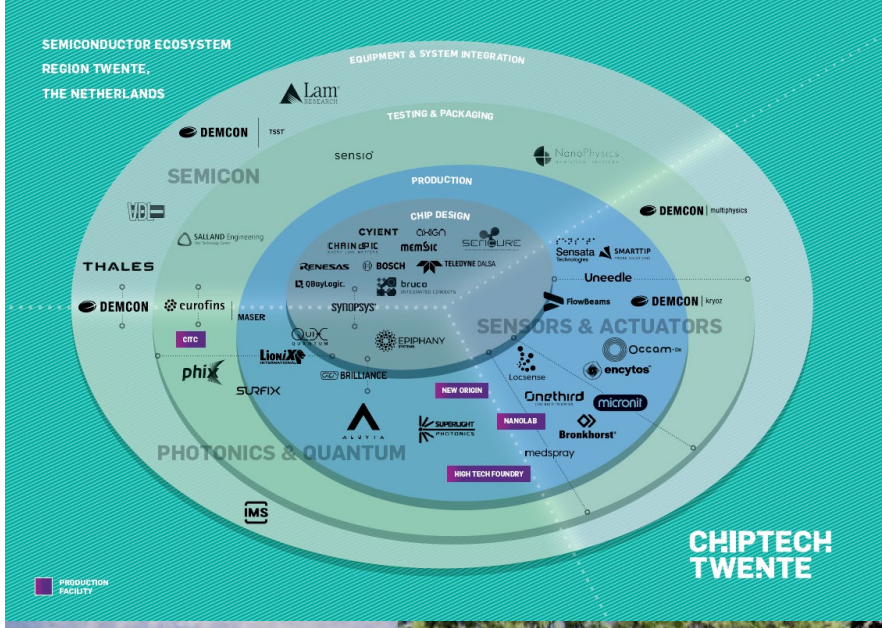
- Nationale Technologie Strategie (6 out of 10 prioritised strategies are linked to Chip Tech)
- Holland High Tech, Topsector HTSM
- Nationaal Groeifonds QDNL, PhotonDelta, NXTGEN, POLARIS, Batteries, Solar
- Beethoven versterkingsplan microchip talent
- EU Chips Act
- ChipNL
- Chip Competence Centre
- ChipTech Twente
- Mission 10x
- PITC
- UT-TNO collaboration

TEAM & CONTACT

- www.utwente.nl/mesa
- J.w.m.hilgenkamp@utwente.nl / v.t.meinders@utwente.nl

CHIP TECHNOLOGY





CHIP TECHNOLOGY

UNIVERSITY OF TWENTE.

In 2026…

WE EMPOWER OUR PEOPLE

- We have a **strategy for attracting and retaining talent, based on the Talent Map and with focus on team science**
- We have a strategy **for UT internal as well as UT external prizes and awards**
- We (as researchers and research support) jointly work on and equip ourselves with **AI knowledge and guidelines**.
- Our vision on R&I talent is translated into a program for PhD and EngD candidates, focused on well-being, talent development and to finish within time.

WE CAPITALIZE ON OUR STRENGTHS

- Key **UT research infrastructure facilities are nationally aligned** and prepared to effectively respond to funding opportunities.
- In appointing new PI's and starting new initiatives, attention will be paid to a good use of the existing infrastructure.
- The UT has a **vision on areas that warrant strategic investments in infrastructure**.
- We have a **renewed focus in support of our partnerships based on impact domains**.
- We have agreed on a **R&I charter** with relevant information, formats and working agreements which is followed by all PIs, support staff and higher management. Via this charter, we work with uniform spending rules across faculties and departments (incl. specific attention for infrastructure), we have uniform processes for project acquisition activities, and we steer on a **net positive funding mix at an appropriate aggregation level**

WE ORGANIZE OURSELVES EFFICIENT & EFFECTIVELY

- We have clarified roles and responsibilities with regards to way of working on our impact domains.
- We have an **up-to-date inventory** (incl. depreciation and re-investment overview) of all UT **infrastructure.**
- We have a coherent **overview of all R&I projects in the pipeline** and regularly reflect on success rates (and best practices) in our committees.
- We have **a UT-wide OS strategy** drafted by S&P, LISA, faculties and OSCT, and continue working towards 100% Open Access
- We have established **UT guidelines for Research Software Management to accompany the Research Software Policy.**
- We have a **UT policy on knowledge security** and a Knowledge Safety Team. Knowledge security is as much as possible aligned with other relevant policies.
- We have revised our research ethics procedure **and – for more challenging cases - an overarching committee** with a pool of experts for a range of topics, and specific attention for academic freedom.

In 2027…

WE EMPOWER OUR PEOPLE

- All researchers have a **plan on the next steps towards valorization** of their research and are **recognized and rewarded** for their valorization activities.

WE ORGANIZE OURSELVES EFFICIENT & EFFECTIVELY

- We have **updated our vision on, and implementation of the research evaluation cycle** based on the new SEP and organized our support structure accordingly.
- **All faculties have an OS plan** informed by the UT strategy. These plans include OA publishing, copyright and research software strategies and further clarify faculty-specific ways to connect OS and R&R.
- We have a renewed **efficient and effective support system** for valorization throughout all phases from initiating collaborations till knowledge transfer, and in case of a spin-off the support after incorporation.

In 2030…

WE CAPITALIZE ON OUR STRENGTHS

- We **mainly do projects** that contribute to our unique proposition: the **integration of social sciences & humanities with science and engineering**.
- 80% of the PIs **commit** to working on our impact domains. The Strategic Board agrees on how to measure progress and regularly reflects and acts accordingly.

R&I AMBITIONS 2025 – 2030 SUMMARISED

UNIVERSITY OF TWENTE.

UNIVERSITY
OF TWENTE.