

# TU/e Annual Report - Management summary

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## Leading the change

TU/e's mission is to educate students and promote scientific research and innovation for the benefit of society. TU/e integrates education and research to enable its students and scientists to become 'thought leaders' capable of solving complex problems and designing and achieving the unimaginable. TU/e Strategy 2030, adopted in 2018, is based on challenges that will affect our society and the university over the next decade: the path to a sustainable world, the digital technological revolution and the impact of technology on society. The Institutional Plan 2020-2025 'Leading the change' describes the implementation agenda until 2025 of the TU/e Strategy 2030. The implementation focuses on 17 strategic priorities, divided into the areas of Talent, Cooperation and Resilience. By 2022, TU/e had taken significant steps forward with the implementation of Strategy 2030. In the light of the ongoing impact of COVID-19 and other major external trends and developments, the strategic mid-term review process took place in 2022 to reframe the strategic priorities until 2025.

## Talent

### Challenge-based Learning

In 2022, work continued in collaboration with the TU/e community to create a widely supported educational vision that will be shaped through a developmental approach along three main lines: Challenge-based Learning, digitally supported learning and professional & personal development.

TU/e innovation Space is the expertise center for Challenge-Based Learning (CBL) and student entrepreneurship as well as a learning hub where students, researchers, business, industry and non-governmental organizations collaborate on responsible solutions to societal challenges. After the concept and activities were previously recognized at national level, TU/e innovation Space won the European Triple E Award in the 'Innovation and Collaboration Space of the Year' category on June 28, 2022. The Triple E Awards recognize efforts towards entrepreneurship and engagement in higher education.

### Student Teams

As of January 1, 2022, all TU/e student teams fall under the umbrella of TU/e innovation Space. This is the result of a new vision for TU/e student teams, created in cooperation with various stakeholders.

TU/e student teams are the 'demonstrators' of CBL and the TU/e educational vision 2030. TU/e innovation Space will align the student team program more closely with this vision and take the facilitation and excellence of the teams to a higher level. The year 2022 was a transition year geared to setting up the new program, including the installation of a 'commission means' with a mandate from the Executive Board for distributing funds to the student teams and making strategic decisions around the teams.

### Student Welfare

A policy framework and multi-year plan for student welfare was adopted by the Executive Board in 2022, with a budget based on the initiatives and evaluation of investments made possible by NPO, among others. The student welfare policy framework sets the goal that TU/e wants to ensure that students are aware of what welfare entails and feel empowered and enabled to take care of their welfare as they see fit.

### Research infrastructure

TU/e has a strong research infrastructure. The various labs and facilities are available to any researcher. TU/e's 21 larger labs appear on the TU/e website. In 2022, particular efforts were made to renew the NanoLab@TU/e: a new building constructed for this purpose would be opened in early 2023. A major contribution to this was made by the National Growth Fund project Quantum Delta.

### Recognition and Appreciation

Recognition and Appreciation make up one of the priorities in the talent policy. The Recognition and Appreciation Task Force developed a development matrix and a biographical sketch in the first half of 2022. These important building blocks for Recognition and Appreciation were discussed with the interdepartmental committees, deans and the Eindhoven Young Academy of Engineering. In the development matrix, starting at the associate professor level, three career paths were developed with a focus on teaching, research or impact. Characteristics for leadership and team are explicitly included at each job level.

## **Growth Fund**

The growth fund was set up by the government to provide a strong boost to the earning capacity of the Netherlands. The contribution of knowledge, research and innovation is indispensable in this. TU/e is a frequent participant in these projects. In total, TU/e participates in 15 of 38 growth fund projects from the 1<sup>e</sup> and 2<sup>e</sup> round:

- AiNed
- Green Power
- HealthRI
- Quantum Delta NL
- RegMedXB
- Aviation in Transition
- The revolution of self-thinking molecular systems
- Sustainable Materials NL
- NXTGEN HIGH TECH
- Photondelta
- BiotechBooster
- PharmaNL
- Future Resilient Living Environment (BTIC).
- Digitalization impulse for education NL
- National LLO Catalyst

## **Personal Grants**

TU/e researchers have traditionally been strong in obtaining prestigious person-centric grants from NWO and the EU. In 2022, 16 researchers (EU-ERC 6 and NWO Talent 10) received grants to strengthen their own curiosity-driven research. In addition, TU/e is very strong in obtaining grants for international PhD networks. In 2022, 19 participations with about 30 PhD students involved were honored from the European Union.

## **Cooperation**

Our university is known for its intensive collaboration with industry, knowledge institutions and public authorities. Brainport's triple helix collaboration is an example for regions around the world. This proven way of working together forms the basis of our partnerships at local, national and international levels and thus of the societal impact of our university and our reputation around the world.

## **Regional**

In order to keep the development of talent in and for the Brainport Eindhoven region in step with the major ambitions of Brainport's mainport status, action is needed. The need for highly skilled engineers in the region has been increasing for years and this growth continues unabated. In 2022, the region asked TU/e whether it could parallel this growth to meet the high demand for highly trained engineers. TU/e responded by launching a study that will be available in 2023. A possible TU/e growth strategy is part of an integral Brainport Talent Strategy. For this exploration, TU/e has therefore been working closely with fellow higher and intermediate vocational education institutions, the knowledge institutions and parties related to the talent assignment in Brainport Eindhoven, which should lead to a joint Talent Strategy in 2023.

Eindhoven Engine took the acceleration of innovation a step further in the Brainport region in 2022. In close cooperation with TU/e, Fontys and TNO (as shareholders) and industry, 26 projects involving more than 350 researchers, students and employees from industry are now connected. In the OpenCall2022 with funding from Regional Deal funds, 7 projects have been added to the portfolio and the total realized co-funding from all projects is approximately €75 million. Several successful community activities were also developed, such as the Health Hackaton and the Festival of Disruption (150 participants). The EmergenceLab projects focused on low literacy, among other things, and this also involved collaboration with the Center for Unusual Collaborations (TU/e, UU, UMCU, WUR).

## **National**

The Eindhoven - Wageningen - Utrecht (EWUU) alliance was established in 2019 to make joint strides in interdisciplinary areas and provide students with access to the educational offerings of all four partners - TU/e, Wageningen University, Utrecht University and UMC Utrecht whereby 'Preventive Health' and 'Circular Society' are priority areas and the Center for Unusual Collaboration plays an important innovative role.

In 2022, the current activities were scaled up further, taking full advantage of the end of the corona period to further encourage student exchange, with the EduXchange and joint student challenges. About 300 courses are now available to all students and about 150 students actively participate in joint student challenges.

In addition, some 40 meetings have been organized on all major initiatives, such as conferences for Preventive Health and AI4Health and sandpits for Circular Society. In total, more than 250 researchers participate in the various joint research projects, mainly funded from the alliance's various seed funds.

In the 4TU context (Eindhoven, Delft, Twente, Wageningen), cooperation in the technical domain was strengthened with a new round of projects in the High Tech for a Sustainable Future (HTSF) program. Education in the engineering domain was also further strengthened and the universities jointly developed the new sector plans.

### **International**

The EuroTech Universities Alliance aims to find technical solutions to important societal challenges. In 2022, EuroTech's focus was on two themes: 'sustainability' and 'strengthen linkages'. These themes were supported by policy initiatives, the initiatives@scale (Research, Innovation & Infrastructure, Education, Sustainable Campus Development, Policy Dialogue, Positioning & Communication) and EuroTech Talks. The EuroTech Visiting Researcher Program and the TU/e EuroTech PhD program were also launched. Furthermore, the EuroTech ERAHubs application COOPERATE was approved. In the field of education, the EuroTeQ project was further developed.

### **European Research & Innovation Projects**

In 2022, a total of 90 European research & innovation projects were approved with TU/e participation or coordination. These included several ERC and Marie Curie projects under Horizon Europe: TU/e obtained 3 ERC Advanced Grants, 1 ERC Consolidator Grant and 3 ERC Starting Grants. For Marie Curie, TU/e was also the leader in the Netherlands in 2022 (as in H2020) with 19 participations to the value of €7 million. Besides ERC and Marie Curie, TU/e secured substantial Horizon Europe project funding including within Cluster 4 (Digital, Industry & Space) and the Key Digital Technologies Joint Undertaking.

In the Digital Europe program, 2 projects were honored in which the TU/e will help regional SMEs with (expertise regarding) the digital transition.

All in all, TU/e in proportion to the number of FTE research employees scores the highest of all universities in the Netherlands when it comes to European project funding.

## **Resilience**

### **Knowledge Security**

In 2022, the knowledge security advisory team ensured that TU/e complies with relevant laws and regulations. The advisory team supports scientists with issues relating to this topic. A central information point for questions was set up, and advice on complex cases was also regularly sought from the national knowledge security desk. Awareness of knowledge security has increased as evidenced by the rise in the number of questions to the information point. In addition, at the request of the Education, Culture and Science Ministry, the advisory team conducted a risk analysis, based on the preliminary national methodology (developed by the UNL Knowledge Security Working Group).

### **Information Security and Privacy**

TU/e is an open organization with a wide variety of internal and external stakeholders. Information Security and Privacy are topics that require and receive a lot of attention. TU/e has invested in recent years to further professionalize the information security organization based on a multi-year Information Security Roadmap. An independent external audit was conducted in the first quarter of 2022. As a result of the results, as part of the multi-year roadmap, an improvement program was drawn up to achieve the intended target, maturity level 3, by the end of 2023. Another external audit will be conducted in the first quarter of 2023.

### **Support Quality Drive**

An excellent university needs not only excellent teaching, research and knowledge exchange, but also excellent support. With the Support Quality Drive (SQUAD) program launched in 2021, TU/e focuses on jointly improving the quality of support at university and department level.

In the summer of 2022, the first round of the program resulted in the adoption of a change plan for the Information Management & Services (IMS) and Data Management & Library (DML) disciplines. The process resulted in broad support for six change areas including the merging of the two services into the Library and Information Services (LIS) service.

Other changes focus on a more product-oriented way of working and the establishment of service hubs to more strongly organize the proximity of services in the departments while strengthening cooperation with the back office/central services. In early spring 2022, the second round started with Finance & Control (F&C) and Human Resource Management (HRM). Both service disciplines are undergoing the cycle of inventory and evaluation. Both projects aim to deliver a draft change plan by early spring 2023, at which time, the third round is also due to begin with Real Estate (RE) and Facility Management Center (FMC).

### **Social safety**

Social safety took further shape in people development in 2022: the theater game Mindlab was offered no less than thirteen times, both online and live on campus. The aim was to raise awareness of the complexity of leadership and social safety issues within the university context. This led to recognition and awareness of the desire for change among much of the employees. Learning interventions were developed focusing on team dynamics and individual contribution to increasing social safety (Active Bystander training). By connecting key players in the social safety domain more actively, increasing role clarity and learning from and with each other, the learning capacity of the TU/e organization has been increased. The Executive Board, the deans and the directors also jointly developed this theme further in workshops during the strategy days.

### **People Development**

The labor market shortages were also felt by the TU/e organization in 2022, especially among the professional employees. 'Attraction and Retention' of the professional employees thus became one of the major pillars of 'People development'. 2022 saw the renewed vision on the (career) development of professional employees and the first steps for its implementation were taken: an extensive reconnaissance was done for renewal of performance management, with the main goal of continuous open discussion on employees development. Additional learning offerings on talent development and leadership were developed in 2022 and well received. The newly developed OpporTUinity Program, aimed at enabling ambitious professional employees to develop and look beyond their own discipline, launched its first pilot in 2022.

### **Ukraine**

In the first half of 2022, a coordinating team worked on possible forms of support for students and employees affected by the war in Ukraine. At the time of the outbreak, 18 students of Ukrainian nationality and 46 students of Russian nationality, who may also have been affected by the EU sanctions imposed, were enrolled at TU/e. All these students were informed by email shortly after the outbreak about the emergency fund set up urgently (see section 2.5 under point 1) and about the help deployed for mental support. Such as life coach sessions through TiNT as the opening of a temporary 'Room for Peace' in the MetaForum building, where students could go to talk to coaches from TiNT, the student community manager and confidential contact persons (CCPs) about their concerns and the impact of the war. HRM took stock of the number of employees affected, and this concerned 65 employees with Russian or Ukrainian nationality. Personal conversations were held with these employees by management and/or HR adviser and any requests for help were discussed. A number of employees were referred to professionals from our health and safety service Human Capital Care.

### **Sustainability**

Several experiments are taking place at TU/e to achieve a sustainable university. Examples of sustainable experiments from the year under review include sustainability in the curriculum, transformative research, waste separation, the Billy Cup (introduction of reusable coffee cups), and smart lighting in Atlas. Right at the end of 2022, the university released an [official statement](#) on the urgency of climate action, with a commitment to centrally integrating these sustainable experiments into the four themes of 'Education,' 'Research,' 'Operations,' and 'Governance,' led by sustainability ambassador Anna Wieczorek; partly with a view to the in 2025 mandatory Corporate Sustainability Reporting Directive (CSRD) to continue evaluating and monitoring these activities. We have begun assessing these components, and this will be followed by a visioning process leading to a roadmap for implementation. This is reflected, inter alia, in the decision that new cooperation projects with organizations from the 'fossil fuel' and energy sectors would only involve projects and/or programs that contribute to renewable energy and sustainability.

## Governance

In 2022 the Supervisory Board met five times with the Executive Board in a regular meeting in which the main developments and matters of the university were discussed constructively.

The University Council met with the Executive Board six times in 2022 in a regular meeting and twice in a brainstorming meeting. The relationship between the University Council and the Executive Board was again constructive.

The University Council also had its regular moments of contact with the Supervisory Board.

Four dean positions were once again filled in 2022.

## Finance

### 1<sup>e</sup> flow of funds

TU/e education is financed from the first flow of funds for education and research (€342.2 million), namely government funding (€314.1 million) and the proceeds from tuition and examination fees (€28.1 million).

The funding parameters in the Ministry of Education, Culture and Science's funding model are numbers of enrollees, degrees, PhDs and designer certificates. Due to an increase in these funding parameters, an increase in the macro framework as a result of wage and price adjustments, growth in the number of students, and the final phase of further ingress of changes in the funding system following the van Rijn Commission, an amount of €27.1 million more was received in 2022 than in 2021. These additional funds are largely earmarked funds with a specific purpose, or funds to absorb cost increases, such as collective bargaining agreement increases. The funds that TU/e can use to structurally absorb bottlenecks in education and research and to further improve their quality are therefore limited.

### 2<sup>e</sup> and 3<sup>e</sup> flow of funds

Research within TU/e is funded from both first, second and third flow of funds.

Second-flow research, whose main grantor is the Netherlands Organization for Scientific Research (NWO), amounted to €34.2 million in 2022. In 2021, it was €33.7 million. Third-flow research, which includes funding from the European Union, totaled €79.9 million. In 2021, this was €80.1 million.

This Annual Report lists a Top 10 industrial cooperation partners (annex 7).

### Result

TU/e ended 2022 with a consolidated positive result of €21.6 million, a figure mainly realized by a number of incidental windfalls (€14.1 million), such as a VAT pro-rata for 2021 and 2022, a higher result of TU/e Participations B.V., due to two successful exits and adjustment of the present value of provisions.

The adjusted result for 2022, after deducting these incidental effects, is €8.7 million compared to a budgeted negative result of -€4.4 million. Investments in strategic programs lag behind the budget. This is caused by delays in filling vacancies of (temporary) scientific employees for both teaching and research programs. On the one hand, it is difficult to fill vacancies (on time) in the current labor market. On the other hand, the resources that become additionally available are often earmarked for specific goals and allocated for a certain period after which the programs and (structural) funding are evaluated. This limits the possibility to deploy these funds for specific bottlenecks. The temporary nature of the funds makes it riskier to appoint permanent employees (both scientific and support). This leads to a high workload across the organization. The focus is therefore on the continuation of the primary research and teaching tasks, causing the efforts and expenditure of the strategic programs to lag behind the ambitions and thus the budget. The budgets for these programs are reserved for the coming years via earmarked reserves, among others.