

Eindhoven University of Technology

# UPDATE Plan for Quality Agreements 2019- 2024

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## 1. Introduction

This document contains the agreements Eindhoven University of Technology has with students, lecturers and other relevant stakeholders to improve the quality of education. These so-called Quality Agreements are made at institutional level and serve as a basis for the distribution of the so-called *studievoorschotmiddelen*. These funds became available after the ending of the basic grant in 2015 and, in agreement with students and teachers, will be spent on 'visible quality improvement' in education.

The Quality Agreements are aimed at visible improvement of the quality of education. Institutions formulate intentions and goals on the following themes for improving the quality of education:

1. More intensive and small-scale education (education intensity);
2. More and better guidance for students;
3. Study success including promotion, accessibility and equal opportunities;
4. Educational differentiation, including talent development inside and outside the study program;
5. Appropriate and good educational facilities;
6. Further professionalization of teachers (teacher quality).

The TU/e **Plan for Quality Agreements** was adopted by the Executive Board on 29-10-2018. In this Plan TU/e indicated which substantive choices have been made on the six themes above - in terms of intentions and objectives - for the spending of the *studievoorschotmiddelen*.<sup>1</sup> It also describes how the plans will be implemented in the period 2019-2024. Furthermore, a description is given of how the consultation with the employee and student representatives takes place and the principles that govern the monitoring and evaluation.

In the period between the adoption of the Plan and the assessment of the Plan by NVAO, developments continued unabated. 'TU/e Strategy 2030. Drivers of change' was adopted in the fall of 2018, on the basis of which TU/e is working on a new educational vision.<sup>2</sup> The principles of the new strategy have been incorporated in an **addendum** to the Plan for Quality Agreements, which was adopted by the Board on 21-8-2019. The addendum provides insight in the implementation of the plan for the coming years and what progress the TU/e wants to have made in 2021. However, part of the expenditure was not yet been earmarked and the outlines were not clearly worked out for all projects until 2024. Therefore, on request of the NVAO a **supplement** was written (adopted xxx) which provided insight into the outline of objectives and activities up to 2024 and the multiannual budget for spending *studievoorschotmiddelen*. Both the Plan, addendum and supplement are adopted by the Executive Board with consent of the University Consultative Council and the Supervisory Board.

In this document the original plan for quality agreements, the addendum and the supplement are united in one document. This document also incorporates the changes made to the plan in 2020. Where there is a discrepancy between the plan, addendum, supplement and this document, this document can be considered as leading.

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<sup>1</sup> For the Quality Appointments Plan, see: <https://www.tue.nl/en/our-university/about-theuniversity/publications/>

<sup>2</sup> For TU/e Strategy 2030, Drivers of Change, see: <https://www.strategy2030tue.nl/> A draft version of the education vision is made available via the share point site 'quality agreements'.

Because this plan is also used to inform new stakeholders, we first provide insight into the background to the development of the plan for quality agreements. We will first discuss the broader framework in which the Quality Agreements are placed, namely the Sector Agreement on Scientific Education 2018 (9 April 2018) between the Minister of Education, Culture and Science and the Dutch universities united in the VSNU. We also discuss the requirements for the plan, in accordance with the sector agreement and the way in which the plan was drawn up at TU/e. Chapter 3 presents the 'Plan for Quality Agreements at TU/e'. In chapter 4 we discuss stakeholder involvement and the programmatic approach to the implementation of the plan for quality agreements. In chapter 5 we discuss the realization of the plan and in chapter 6 the way in which we monitor the outcomes of the plan.

## 2. Background

On 9 April 2018, the Minister of Education, Culture and Science signed a Sector Agreement with the universities on university education. In this agreement, the parties set out their Quality Agreements for higher education, the way in which universities are to be profiled and the shared priorities for the coming government term of office. The Sector Agreement covers all funded academic education (wo) as it applies for the period from 2019 up to and including 2022. Insofar as the Sector Agreement relates to Quality Agreements, it applies for the period 2019 up to and including 2024.

The Sector Agreement contains the agreements on:

1. Investing in the quality of **education**:
  - a. Investing in *studievoorschotmiddelen*, via the Quality Agreements (see section 2 and following).
  - b. Ensuring accessibility and progression to and from higher education: promotion of VWO-WO, care and restraint regarding decentralized selection, transparency in progression from BSc to MSc, promotion of student welfare.
  - c. The internationalization of education: controlled growth of international students, English-language programs and accessibility for Dutch students, promotion of international mobility and binding of international graduates to the Netherlands.
  - d. Linking up with the employment market and stimulating entrepreneurship education: greater focus on the existing supply of courses and programs, more scope for innovation and responsiveness, more ownership for institutions, more cooperation between institutions and other parties involved, and less administrative burden.
2. Working on world-class **research**
  - a. Profiling: via the National Science Agenda and Sector Plans. Additional research funds will be made available under the coalition agreement, (increasing to) €70 million of which will be made available through Sector Plans. In accordance with the coalition agreement, the government will invest these resources mainly in science and technology research (via the lump sum).
  - b. Leading the way internationally in the field of Open Science: achieving the ambitions set out in the National Plan for Open Science.
  - c. Strengthen impact: commitment to entrepreneurship education and to promoting academic start-ups.
  - d. Making more use of female talent.

As **preconditions**:

1. Investments:
  - a. For the improvement of the quality of education, the *studievoorschotmiddelen* will structurally make extra resources available from the budget of the Ministry of Education, Culture and Science. For the universities, these funds will increase from €77 million in 2019 to €232 million in 2024. Part of the *studievoorschotmiddelen* (10%) has already been earmarked for national priorities. For the remaining funds (90%) Quality Agreements will be made for the period 2019 to 2024.
  - b. Annually, €39 million in profiling funds are already available (the '2% funds').
  - c. Under the coalition agreement, funds will be made available for fundamental research, applied research and innovation, and research infrastructure.
  - d. Further research into the funding system.
2. Transparency and accountability: by developing a permanent national overview of key data for education, research and impact for universities of applied sciences and universities.
3. Workload and lower regulatory pressure: planning workload, reducing the pressure of application procedures and accreditation procedures, etc.

The Quality Agreements are linked to the *studievoorschotmiddelen* that will be employed to achieve a visible improvement in the quality of education. Institutions formulate intentions and goals on the following themes for improving the quality of education (see Appendix 1 for an explanation per theme):

1. More intensive and small-scale education (educational intensity);
2. Educational differentiation, including talent development inside and outside the study program;
3. Further professionalization of teachers (teacher quality);
4. Appropriate and good educational facilities;
5. More and better guidance of students;
6. Study success including promotion, accessibility and equal opportunities.

## 2.1 Plan for Quality Agreements: content

In a plan, the institution reveals what it aims to achieve with the use of *studievoorschotmiddelen* up to and including 2024. This plan for the use of the *studievoorschotmiddelen* will include:

- The intended expenditure ('intentions') on the six nationally agreed themes;
- The goals the institution wants to achieve with this spending;
- The use of *studievoorschotmiddelen* or the reason why no use is made of the *studievoorschotmiddelen* for that theme;
- How these choices fit in with the broader educational intentions and vision of the institution and the history and context of the institution, including, for example, the long-term development of the institution's budget;
- What progress has been made in achieving the intentions in 2021?

Intentions and goals may apply to the entire institution, but also to certain parts of it or to specific groups of students.

The institution's *plan for quality agreements* may be embedded in a new institutional plan (in Dutch: instellingsplan) but may also be an addendum to an existing institutional plan.

## 2.2 Accountability for the plan

The institutions translate the themes for the use of resources into concrete measures and policies. This takes place in a dialogue between students, lecturers, relevant external stakeholders (companies, NGO's, other educational institutions, regional authorities), Executive Board and Deans, student and employee representatives and Supervisory Board.

The University Council has the right to consent to the plan for the use of the *studievoorschotmiddelen*. In addition, it has the right of consent (in Dutch *instemmingsrecht*) to the part of the annual budget that concerns *studievoorschotmiddelen*, based on the consideration that these funds are part of the main budget lines of the institution. This concerns the further concretization of the multi-year budget included in the plan.

The board and the University Council also agree on the process to be followed in order to arrive at the plan for the use of the *studievoorschotmiddelen*. Employee and student representatives will be involved in good time and can contribute ideas. The board and the University Council jointly ensure a broad involvement of the university community and agree which bodies within the institution will be involved in the process of drawing up the plan.

The plans for the use of the *studievoorschotmiddelen* are submitted to the Supervisory Board for approval after approval by the University Council.

In the annual reports of the institution from 2019 onwards, the institution will report on its progress in terms of content and process in a separate chapter. In an appendix to the annual report, the University Council is given the opportunity to report independently on the use of *studievoorschotmiddelen*.

### 2.3 Assessment of the plan by NVAO

The plans and their realization are independently assessed in alignment with the process of the Institutional Audit (Dutch abbreviation ITK), which is carried out by the Dutch-Flemish Accreditation Organization (NVAO). A separate trail for the Quality Agreements will be added to the ITK process, resulting in a separate recommendation to the Minister of Education, Culture and Science regarding the institution's plan for the use of *studievoorschotmiddelen*. This recommendation is therefore independent of the NVAO decision on the ITK. There are three assessment points: a review of the plans (for TU/e during the ITK in autumn 2019), an assessment in autumn 2022 of the progress and involvement of the employee and student representative bodies and other relevant stakeholders, and a final evaluation. If the assessment of the plan and the progress are insufficient, the *studievoorschotmiddelen* will be made available to the teachers of the institution via the Comenius grants.

In January 2020, NVAO gave a positive advice to the Minister on the TU/e plan for quality agreements.

Given the Quality Agreements, the *studievoorschotmiddelen* for 2019 and 2020 are paid out as an unconditional lump sum (for the universities in proportion to the share of a university in the student-related funding in a year). In the period up to April 2020, the plans of the institutions will be assessed by the NVAO. If the NVAO gives a positive recommendation about the plan and the Minister issues a positive decision, the institution will receive its *studievoorschotmiddelen* for the period 2021 up to and including 2024. Following the advice of the NVAO, in April 2020 the Minister has decided to grant the *studievoorschotmiddelen* for the period January 2021 to 31 December 2024.

### 2.4 Process for establishing Quality Agreements at TU/e

In the period 2015-2017, universities made pre-investments in order to improve the quality of education. The aim of using the *studievoorschotmiddelen* is to improve the quality of education at TU/e. This means that TU/e has invested in the areas of more intensive and small-scale education, improvement of student guidance and coaching, talent development and educational facilities and professionalization of teaching. The Netherlands Court of Audit (*Nationale Rekenkamer*) examined these pre-investments and found in a confidential report that it is somewhat difficult to determine whether the pre-investments of TU/e are also pre-investments according to its definition. In addition, the court found that in 2016 and 2017 the University Council had actually given its approval to the broad outlines prior to the budget.

In 2018, TU/e received for €2.9 million *studievoorschotmiddelen*. TU/e has made additional investments aimed at all students in the field of more intensive and small-scale education, improvement of student guidance and coaching, talent development and educational facilities, and professionalization of teaching (see appendix 2 for the use of the *studievoorschotmiddelen* in 2018). In addition to the available budget for *studievoorschotmiddelen*, TU/e invested a further €1.2 million



in Teaching Assistants in 2018 in order to strengthen hands-on education (more intensive, small-scale education) and accelerate the digitization of education (suitable and good educational facilities). A total of €4.1 million has therefore been reserved specifically for improving the quality of education at TU/e.

Because of the protracted lack of clarity about the allocation of *studievoorschotmiddelen* and the delay in the formation of the Coalition Agreement, the involvement of students and lecturers in the use of *studievoorschotmiddelen* for 2018 was jeopardized. The University Council then expressed the strong wish to be involved at an early stage in the discussions about the use of the *studievoorschotmiddelen* in order to ensure that the involvement of students and lecturers for the 2019 budget cycle is fully facilitated, in accordance with the Minister's approach. In order to ensure a clear process and clear accountability for the use of the *studievoorschotmiddelen* from 2018 onwards, it was agreed with the University Council at the end of 2017 that 'prior to the discussions on the spring memorandum of the budget, an initial consultation on this subject would be held with (a delegation of) the University Council (UR) as early as February 2018, resulting in a joint passage in the spring memorandum on the use of the *studievoorschotmiddelen*.<sup>3</sup>

In February 2018, an initial consultation took place on the use of *studievoorschotmiddelen* in 2019 and, furthermore, between the Dean of the Bachelor College (BC) and the Dean of the Graduate School (GS) and the BC and GS Committee of the University Council. A first proposal for Quality Agreements has been drawn up for each theme. The University Council then asked the student associations and departmental councils for input on the use of *studievoorschotmiddelen*. In summary, it emerged from this consultation round that it would be preferable for the *studievoorschotmiddelen* to be invested in matters that benefit all TU/e students and not only specific groups, such as student teams. According to the students and teachers points of attention are:

- Small scale and intensive education: Hands-on learning, lab work, personal contact between student and teacher, lower student-staff ratio;
- Improvement of coaching and counseling;
- Study workplaces;
- Digitization: digital testing, blended learning, streaming lectures, educational innovation with ICT;
- Contests: design, hackaton;
- Courses: English language courses;
- Development of talent, including Honors Academy in the Master phase. This would also require the issue of badges or certificates.

In March 2018, a second meeting was held between Deans and the University Council delegation to discuss the content of the Quality Agreements and the prioritization of the six themes, based on input from the departments. It was agreed that the Quality Agreements would be formulated as obligation of effort, for example: Number of teaching assistants to be deployed; Increase in the number of teachers; Small groups of a maximum of 5 students; All students follow a course in the Innovation Space; Development of an X-number of experiments with interdisciplinary education or with subjects that students set up themselves. In these consultations, the order of priority for the use of the *studievoorschotmiddelen* was determined:

1. Small-scale and intensive education
2. Appropriate and good educational facilities
3. Teaching quality and further professionalization of teachers
4. Educational differentiation
5. Study success

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<sup>3</sup> See correspondence from Ummelen to University Council, dated 22-11-2017.)

## 6. More and better coaching and guidance for students

The agreements made with the University Council, having heard the departmental councils and study associations, are set out in a 'TU/e Quality Agreements Plan' of 2019-2024 in which TU/e includes a long-term budget that gives an overview of what TU/e intends to spend the *studievoorschotmiddelen* on.

This plan has been discussed by both Deans with:

Body	Date (in 2018)	Goal
BC and GS committee of the University Council	24 May	Discuss draft of 'Quality Agreements plan'
Education Board	14 June	Discuss draft of 'Quality Agreements plan'
Executive Board	14 June	First discussion: decision to convey to bodies
Executive Board and deans (University Consultative Council)	18 June	Discussion
Students and teachers in the Joint Program Committee (JPC)	Informative	Right to advise
Program directors BC (OO)	19 June	For recommendation
Directors of Graduate Programs (OGS)	26/27 June	For recommendation
Directors Council	Informative	For recommendation
Executive Board	23 August	Second discussion: comments, remarks and any changes
Supervisory Board	27 September	Approve plan
University Council	22 October	Right of consent
Executive Board	29 October	Adopt Quality Agreements plan

### 3. TU/e plan for Quality Agreements

The Plan describes the choices made by TU/e on the educational quality themes. Below we give the intentions and goals and our reasons for using *studievoorschotmiddelen* for eight projects/programs. Section 3.7 provides an overview of the investments per project/program, per year.

#### 3.1 Theme 1: More intensive and small-scale education

The theme of intensive and small-scale education is the most important theme for TU/e in the field of educational quality. As early as in the education vision from 2013, it was described that engineering education is ideally suited to small-scale and intensive education, i.e. working in small groups with the guidance of a tutor on 'open' problems. The new 2030 strategy, and the educational vision derived from it, also emphasizes that 'our goals can only be achieved in a relatively small-scale environment where students and scientists interact freely and frequently' (TU/e Strategy 2030, p. 32).

The growth in the number of students has jeopardized intensive and small-scale education, mainly because the growth in the number of teachers has not developed at the same pace. Recently, TU/e received extra funds, which means that the number of lecturers will increase further in the coming years. No *studievoorschotmiddelen* will be used for this purpose.

Within this theme, two projects have been chosen;

1. Challenge-Based Learning program
2. Teacher/teaching assistants and hybrid teachers project

##### 3.1.1 Project 1: Challenge-Based Learning Program

In Strategy 2030, TU/e opted for the concept of Challenge-Based Learning (CBL). This educational concept aims at the further development of intensive and small-scale education at TU/e whereby the content of education is linked to issues faced by business and industry, and to societal themes and research, i.e. to 'real' problems.

##### **Motivation**

In CBL, intensive, activating and collaborative learning comes first: 'from teaching to learning'. Students, teachers and stakeholders work hands-on to develop ideas, ask questions, identify and solve problems, gain knowledge and develop skills. CBL increases the inquisitiveness of students and their research and creative skills, and they develop the right attitude for lifelong development.

In the coming years, TU/e intends to focus on experiments in the field of Challenge-based Learning, the effects of which will be studied. This will make it possible to determine in 2025 whether and how this educational concept can play a central role in 'on-campus' education. If this is the case, the concept will be used in all study programs. In 2018-2019, the first experiments were started, often at the level of courses. These courses are facilitated and supported by the TU/e innovation Space. TU/e innovation Space is the center of expertise for challenge-based learning and student entrepreneurship at TU/e, a learning hub for education innovation and an open community where students, researchers, industry, and societal organizations can exchange knowledge and develop responsible solutions to real world-challenges. Now we are working on a major CBL project (E3) in which around 90 students will be able to participate from 2020. In addition to this large-scale project, various experiments

also take place on a smaller scale and specific topics will be explored, such as testing and coaching. In addition, a CBL program plan will be written and a program organization set up.

**Proposed expenditure on the Challenge-Based Learning program**

500 K in 2019 and 2020, rising to 2,5M per year of the studievoorschotmiddelen for experiments in the context of Challenge-based Learning including TU/e innovation Space.

**Progress 2021:**

1. From 2019/2020 at least one of the new experiments will start. Through educational research, all experiments will be monitored in order to ultimately arrive at evidence-based working methods. In 2021, a large-scale, cross-disciplinary experiment will be developed, and its implementation planned.
2. The CBL program plan will be ready (including identification of the research themes based on the experiments).
3. Program organization will be established.
4. The development of the CBL teaching professionalization will have begun.
5. TU/e innovation Space facilitates the set-up of E3 and other CBL initiatives from all Departments and Contributes to the development of CBL research and teaching professionalization in the field of CBL. TU/e innovation Space evolves into a learning hub for education innovation and an open community where students, researchers, industry, and societal organizations

**Objective 2025:**

Goal of the Challenge-Based Learning program is to determine in 2025:

- whether the CBL education concept will be used for all of our on-campus education;
- how CBL can best be used in education;
- how a curriculum of CBL and knowledge modules can be developed;
- how to best shape CBL-based assessment;
- how educational support and organization can be structured around the educational concept of CBL;
- what skills teachers need for CBL and how they can be supported in its development;
- how the further roll-out of CBL can be optimally organized.

In the CBL program, the *studievoorschotmiddelen* shall be devoted to the following main lines of action up to 2024:

1. Experiments with Challenge-based learning at various levels:
  - Within different (optional) subjects and (optional) packages of subjects;
  - CBL aspects in the revision of BSc curricula (E.G. Chemical Engineering & Chemistry and Electrical Engineering);
  - E3 project: multidisciplinary Challenge-based Learning program (start 2020-2021);
  - Implementation of Challenged-based learning in a new BSc program in Artificial Intelligence: yet to be developed.
2. Appointment of a Challenge-based Learning Program Manager, whose tasks include ensuring that the experiments are planned, carried out, evaluated and adjusted;
3. (Critical) prerequisites for Challenge-based Learning: such as educational support, teaching spaces, educational research. Many experiments will take place within the TU/e Innovation Space, which will have to be further developed accordingly. Additional locations (possibly aimed at specific departments) are expected to be necessary.

### 3.1.2 Project 2: teacher/teaching assistants and hybrid teachers

Strategy 2030 emphasizes that a staff-student ratio of 1:17 is ideal for both intensive and small-scale teaching, as well as for providing teachers with the necessary research time. This is important in the context of the interrelationship between education and research. Additional funds have recently become available, which will enable TU/e to attract additional lecturers in the near future. No *studievoorschotmiddelen* will be used for additional lecturers. In order to contribute to the quality of education, TU/e has chosen to invest in the deployment of teacher and teaching assistants as of 2018.

Strategy 2030 states that TU/e wants to investigate the possibilities for deploying lecturers from business and industry: 'Academic education is increasingly a team effort of universities, companies and societal organizations. To enhance our educational capacity and challenge-based projects, we will explore opportunities for teaching capacity provided by our partners, for example to coach students in challenge-based learning assignments and to provide advice regarding student career development' (p. 32). In this context, from 2019 to 2021, the TU/e will participate in a Brainport pilot with business and industry along with knowledge institutions on the use of so-called 'hybrid teachers'.

#### **Motivation**

In order to maintain the small scale of education and to prevent education from being given in largescale lectures or in projects with limited supervision and feedback, in 2018 TU/e started with the use of *studievoorschotmiddelen* for so-called teacher assistants or teaching assistants (TAs) and hybrid teachers (pilot).

#### *Teacher assistants: student assistants.*

These are students or employees who are deployed to support teachers, for the benefit of extra contact between teachers and students, the promotion of working in smaller groups and/or more project-based learning (Challenge-Based Learning). Examples of deployment of teacher assistants are:

- Guide for instructions: to give students personal feedback and to help them in practicing assignments.
- Mentor in project education: students are used as to assist the process in project education in the bachelor's program.
- Administration tasks, giving the teacher more time to supervise students.
- Co-assessment of assignments, homework etc.

The role of student-assistants tends to be to support instructions or guided self-study. These are often students who have recently completed the subject with great success and are therefore able to help fellow students in undertaking assignments or the study of the literature. In addition, student assistants are used as tutors, i.e. as more or less independent process supervisors for group work.

#### *Teaching assistants: educational assistants.*

These are employees of the university with at least a master's degree. Teaching assistants are appointed to a temporary position and are deployed to support the permanent staff in educational tasks. A teaching assistant carries out all his/her activities under the supervision of an assistant or full professor in the group concerned. The tasks of a teaching assistant are focused on, among other things:

- the (co-)teaching of bachelor courses so that education can be provided in smaller groups.

- developing new forms of small-scale project education (Challenge-Based Learning) or new forms of education that make activating learning possible (blended learning, formative feedback, etc.) or replacing a teacher who develops such forms of education.

Within the framework of the development of the teaching assistant, it is possible to obtain a UTQ (university teaching qualification –BKO-). Examples of teaching assistants:

- Graduated master students,
- PhD candidates with an extended contract for education,
- Postdocs.

#### *Hybrid teachers.*

These are employees from business and industry who, for a certain period of time, free up a number of hours per week to work in education. Hybrid teachers can be used for coaching of project groups and individual students, supervision of bachelor and master thesis projects and giving guest lectures. These hybrid teachers continue to work in their company and are given the opportunity by their company to teach. The deployment of these employees also increases student-'teacher' interaction. An additional advantage is that these employees from business and industry form a good link with practice for students and on the basis of these insights and experiences are important in the academic development and employment market orientation for students.

The use of teacher/teaching assistants and hybrid teachers contributes mainly to increasing student-staff interaction and in particular to education in smaller groups. In addition, it creates opportunities for educational improvement, either by freeing up teachers to invest time in this or by allowing the teaching assistants to develop education under supervision.

**Proposed expenditure on project teacher/teaching assistants and hybrid teachers:**  
1M rising to 2,8M per year of the *studievoorschotmiddelen* for the deployment of teaching and teacher assistants and hybrid teachers in education.

#### **Progress in 2021:**

- All departments will use teacher/teaching assistants for intensification and small-scale education.
- Adjustment of the teacher/teaching assistants' regulations after the evaluation among teachers and students in 2020.
- Brainport pilot for hybrid teachers will be evaluated and completed. The decision on the continuation of the use of hybrid teachers will be taken at the end of the pilot.

#### **Objective 2025:**

Deploy teacher/teaching assistants in every department for intensive and small-scale education. A pilot project is being carried out to explore the possibilities for the use of hybrid teachers from business and industry.

In this program, the *studievoorschotmiddelen* shall be devoted to the following main lines of action up to 2024:

1. Deployment of teachers and teaching assistants in each faculty, so that the small-scale and intensive nature of education at the TU/e is safeguarded and teachers retain enough time to improve the quality of their education;

2. Deployment of hybrid instructors in each faculty as coaches, supervisors for Challenge-based Learning, supervisors for bachelor's and master's theses and for giving guest lectures.

### 3.2 Theme 2: More and better guidance for students

According to TU/e Strategy 2030 educating the engineers of the future is of great importance. These engineers must be able to cope with complex problems and challenges. In order to do this, they need not only disciplinary knowledge, but increasingly also skills such as systems thinking, creative thinking and working together in multidisciplinary teams. Future engineers must learn to develop themselves throughout their lives so that they can adapt to constantly changing knowledge and circumstances.

Within this theme the program 'Sustainable employability for students' and the project 'Pathways' is developed.

#### 3.2.1 Project 3: Sustainable employability for students' program

As a basis for a lifelong development attitude, TU/e students are given a high degree of freedom to make choices and the opportunity to acquire the right skills and develop a professional identity. Strategy 2030 emphasizes that in creating personal learning paths, it is essential for students to be intensively supervised by teachers as well as by alumni, student advisors, study career counsellors and fellow students.

#### **Motivation**

In addition to disciplinary knowledge, engineers of the future must also develop a clear professional identity and have the skills and mindset to adapt flexibly to the changing circumstances in their field of work. In order to prepare our diverse student population for the employment market, the 'sustainable employability for students' program includes various projects in the field of student employability. This concerns a coherent program in which the improvement of skills training (professional skills) and the preparation of students for employment are linked to the improvement of coaching for students in bachelor and master programs. This ambitious program will be supported by ICT resources.

#### **Proposed expenditure on program Sustainable employability for students:**

100K rising to 300K per year of the *studievoorschotmiddelen* for various projects in the field of student employability.

#### **Progress 2021:**

- Program plan 'sustainable employability for students' ready.
- Program organization has been set up.
- Update of the policy regarding coaching and mentoring in connection with Bachelor College and Graduate School.
- Update of the policy on the development of professional skills.
- All study-programs will have an implementation plan for the revised employability policy.
- An ICT system will have been purchased to enable students (and coaches) to monitor their development.

**Objective 2025:**

Goal of the Sustainable employability for students' program is to (re)develop and implement coherent policies and projects aimed at sustainable employability for students. All student employability activities (e.g. professional skills, career activities and coaching) are carried out in a clear and coherent manner and communicated to students and staff.

The *studievoorschotmiddelen* will be spent on the development and implementation of 'sustainable employability for students' up to 2024. In addition to the development of the policy on this topic, projects will be organized aimed at:

1. Purchase and/or development of a (digital) system that allows students to keep a cross-curricular portfolio of all employability-related learning activities they undertake and on their personal development towards their professional identity;
2. Purchase and/or development of tools for students to evaluate their functioning and progress with regards to employability, and to prepare their meetings with their coach. Replace the current self-assessment in the master with a more compact and "light" assessment that could possibly also be used in the bachelor;
3. A (upgrade of the) communication platform for students about employability. As a result, all student employability activities (e.g. professional skills, career activities and coaching) are carried out in a clear and coherent manner and the overarching framework is clearly communicated to prospective and current students and to staff;
4. Identify the current and future coaching roles (including CBL) and provide training and professionalization options for staff in their coaching role;
5. The digital systems and tools concerning employability are embedded in the coaching of students.

**3.2.2 Project 4: Pathways**

From 2020 the project 'Pathways' will be linked to the program 'Sustainable employability for students'. Previously this was project under theme 4 (see section 3.4).

**Motivation**

To encourage students to develop themselves professionally TU/e has been developing a support system for badges, i.e. 'a symbol or indicator of an accomplishment, skill, quality or interest'. Badges are digital tokens that can be issued by verifiable institutions to reward informal learning activities. With this support system for badges, the diversity of students will be able to distinguish themselves in terms of skills.

This project is an initiative of students and is carried out in close cooperation with students. The project focuses on the use and possibilities of badges to intrinsically motivate students to prepare themselves better for the employment market. The employment market for engineers is very broad, students should be focusing on their development in both technical and professional terms. The support system for badges will guide and encourage students to work on their professional development and will enable them to distinguish themselves from other students.

In recent years, a pilot with badges has been carried out along with further research into the factors that govern success and failure. This project plan for the coming five years, with concrete goals, has been drawn up to share the deliverables in the long term.



**Proposed expenditure on project Pathways:**

100 K per year of the studievoorschotmiddelen for use and possibilities of badges to stimulate students to prepare themselves better for the labor market

**Progress 2021:**

- Setting up, executing and evaluating a pilot with with coaching and a guidance system for >100 students
- Development of so-called 'badge tracks' with substantiated competency sets
- Development of a support platform.
- Evaluation and implementation of different types of coaching (e.g. peer coaching)

**Objectives 2025:**

Goal is: Motivating students to develop their professional identity and talents throughout their years at the TU/e and reward them for it. The project is aimed at:

- a) Enabling students to acquire recognized achievements – with badges - and gives guidance in the development of their professional skills.
- b) Stimulate students to gain a proactive attitude towards their employability by enabling them to take control.
- c) Learn and experiment with the issuing of badges, the technology and impact on motivation, create a sustainable support system.
- d) 80% of the TU/e students – using the pathway system - feels supported by this system in developing themselves professionally for their career after the TU/e.

### 3.3 Theme 3: Study success

Attention to the progression and accessibility of education for students from secondary and higher vocational education, equal opportunities, inclusiveness within higher education, preventing dropouts and promoting study success remain important themes for TU/e. Within the Bachelor College and the Graduate School various projects are being carried out that come within this theme, such as the International Classroom program and the strengthening of cooperation with Fontys University of Applied Sciences.

TU/e has not yet formulated any projects on this theme in the Plan for Quality Agreements. In her response to the advisory report of the Van Rijn Committee, the Minister of Education, Culture and Science indicated that she was asking the four universities of technology to come up with a sector plan for education by the summer of 2020.<sup>4</sup> This plan addresses, among other things, the issue of boosting study success in the field of science and technology. This plan could lead to TU/e deploying *studievoorschotmiddelen* to increase study (or student) success in the coming period.

### 3.4 Theme 4: Educational differentiation

In Strategy 2030 TU/e explicitly expressed that education must be geared to a diversity of students: 'The 2030 generation of TU/e students will be digital natives with very diverse motivations, learning styles and educational needs. Our students will come from all over the world, and have diverse backgrounds in terms of age, culture, social background, gender and level of training. Learners will take responsibility for their own learning process, which may not always be linear. High-school

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<sup>4</sup> <https://www.rijksoverheid.nl/documenten/kamerstukken/2019/06/21/kamerbrief-met-reactie-op-advies-bekostiging-hoger-onderwijs-en-onderzoek>

graduates will combine working and learning experiences, leading to modular learning paths instead of pre-programmed five-year full-time studies' (p. 28/29).

In order to respond to the diversity of students, TU/e has been investing in honors programs for many years and, through a wide range of options, students are offered the opportunity to give their own color to their educational program. Furthermore, the BOOST! program provides opportunities to offer education in a more differentiated way (see section 3.5.2).

Within the theme of educational differentiation, *studievoorschotmiddelen* are used for the project Pathways. This project will be part of the 'Sustainable employability for students' program from 2020 onwards (theme 2: More and better guidance for students).

### 3.5 Theme 5: Appropriate and good educational facilities

In Strategy 2030, TU/e states that personal learning paths are only possible if education is offered in a more flexible and modular manner. To this end, TU/e wants to focus on offering subjects and lectures online, for example as support for Challenge-based Learning. In addition, online coherent choice packages for bachelor and master students and for other interested parties (Lifelong Learning) can be developed. Digitization also helps to improve the quality of assessment and stimulate interaction and feedback between students and with their coach.

Two projects/programs have been formulated within this theme;

1. Streaming project.
2. BOOST! program: Be the Owner of your Own STudy.

#### 3.5.1 Project 5: Streaming

In order to support the diversity of students with different learning methods, the availability of online learning materials is essential.

##### **Motivation**

In the past, TU/e has focused on the so-called 'interlinking' of lectures when there were insufficient teaching rooms available to accommodate the growth in the number of students. After a pilot in 2017-2018, a start has been made with live streaming of lectures per academic year 2018/2019. Live streaming allows students to choose where and when to attend classes. The streamed lectures are also recorded, so that they will later be available as video lectures.

The effects of streaming are monitored at the request of the University Council. The use of streaming and its contribution to the quality of education is evaluated annually through course evaluations and panel discussions with students. Evaluations have shown that students appreciate live streaming and the related recordings.

##### **Proposed expenditure on project streaming:**

311K <sup>5</sup>per year of the *studievoorschotmiddelen* for the live streaming of lectures.

##### **Progress 2021:**

- Evaluation project streaming (mid-2019).
- Pilot self-service in semester 1 2019-2020.
- Didactic analysis completed.

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<sup>5</sup> Budget for streaming is adjusted in 2020. See section 3.7.

- Technical analysis completed.
- Quality assurance streaming organized.
- Streaming 20 subjects per quartile.
- All streamed courses available as video lectures.
- Student rating >8.

### **Objectives 2025:**

Goal of the streaming project is to contribute to the quality of education, whereby the live streaming of education is used to offer students alternative opportunities to follow courses per academic year 2018/2019. This goal must be realized and implemented in existing processes in the most didactic and technically responsible way possible.

In this project the *studievoorschotmiddelen* shall be devoted to the following main lines of action up to 2024:

1. Resources needed to realize the streaming of lectures, such as technical resources, setting up rooms, and deployment of employees;
2. Deployment of student assistants to realize streaming and recording lectures;
3. Evaluation of the effects of streaming.

### **3.5.2 Project 6: BOOST! program**

In line with Strategy 2020, TU/e has made great efforts in recent years to improve educational logistics by renewing the Student Information System. In addition, a great deal of progress has been made in the digitization of the learning process through the purchase of a state-of-the-art Learning Management System and digital assessment system, among other things. In strategy 2030, digitization of education is seen as a tool to achieve goals such as more flexible and modular education, and the creation of personal learning paths.

### **Motivation**

A BOOST! (Be the Owner of your Own STudy) program plan for educational innovation with ICT<sup>6</sup> describes the goals set out by TU/e in the field of the digitization of education. The starting point is that the digitization of education is seen as a precondition for the further introduction of Challenge-based Learning.

The BOOST! program started in 2019, with a program manager having been appointed, a phase plan written, and the first round of projects begun. In the first half of 2019, €1.150k was awarded to 25 BOOST! projects. Because the BOOST! funds have been utilized in this way, funds from the 'special-purpose reserve for quality agreements' are used for the applications for the second part of 2019. The funds requested will be granted after the projects have been assessed by an education expert, ICT expert and an educational researcher for the contribution they make to the improvement of the quality of education. A sounding board with students is actively involved in the BOOST! program. The BOOST Steering Committee takes the final decisions on the implementation of the projects. All BOOST! projects are evaluated, and the results are presented to the steering committee and sounding board group as well as the Quality Agreements Committee (see chapter 4).

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<sup>6</sup> Fred Gaasendam, Lilian Halsema, Anneke Sikkema (2019), BOOST! Be the Owner of your Own Study. TU/e program plan for innovation in learning with ICT Eindhoven. Eindhoven University of Technology.

The BOOST! program manager is part of the 'flexibilization' zone as part of the ICT in education acceleration agenda of VH/VSNU and SURF.

**Proposed expenditure on BOOST! program**

1M in 2019, rising to 2,5M per year of the studievoorschotmiddelen until 2024 for educational innovation with ICT.

**Progress 2021:**

- The completion of a number of projects in the field of more flexible education, such as: blended and therefore making parts of curricula independent of time and place, virtualizing labs for simulations and real-time experiments, improving the quality of digital material and by simulating real-time environments.
- The completion of a number of projects in the field of more personal education, such as: the introduction of serious gaming, the development of a platform and tools for digital coaching and competence development, the application of learning analytics and the application of various feedback systems.
- The completion of a number of projects geared towards greater attention to diversity, such as: the development of online homologation modules, virtual lab modules that can also be used by other institutions, and a remote lab with control of physical, non-virtual systems, which can also be used by other institutions.
- Increased collaboration between students in education by creating collaboration platforms that facilitate collaboration in groups and companies.

**Objective 2025:**

Goal of the BOOST! program is to offer more flexible education, whereby a diversity of students can develop a personal learning path and with which more cooperation between students (international, national and on campus) and between companies, other educational institutions and TU/e, is made possible.

In this program the *studievoorschotmiddelen* shall be devoted to the following main lines of action up to 2024:

1. Projects in the field of educational innovation with ICT aimed at:
  - making education more flexible,
  - more personal learning pathways,
  - more attention to diversity of learners, such as Lifelong Development,
  - support for cooperation between students (national, international) and between universities and Industry.
2. Appointment of a program manager BOOST! whose tasks include ensuring that projects in the field of educational innovation are planned, implemented, evaluated and adjusted with ICT;
3. Preconditions for BOOST: such as educational support, technical facilities, educational research.

**3.6 Theme 6: Further professionalization of teachers (teacher quality)**

According to Strategy 2030 the transformation of 'teaching to learning' is necessary to support students in their individual learning paths. This means that the core of activities and control shifts, from teacher to student. The main task of the teacher is no longer to transfer knowledge, but to enable learning processes and the design of (various) learning environments. Strategy 2030 indicates that this shift does not come about automatically: 'We will develop and implement expertise that enable academics to grow into their new role as facilitators of students' learning

processes' (p. 30). Teachers who want to develop into 'learning innovators' are offered training opportunities and incentives.

TU/e has formulated two projects within this theme:

1. Educational Leadership project
2. Professionalization of Teachers project

### 3.6.1 Project 7: Educational Leadership project

As of 2018, Utrecht University provides an 'educational leadership course' for a selected group of TU/e teaching staff.<sup>7</sup> The goal of this course is to stimulate leadership in education and educational innovation. In particular, (future) program directors and leaders of large innovation projects are taking part in this professionalization process. The first batch of these educational leaders will complete this course in 2019.

#### **Proposed expenditure on project Leadership in Education**

150K a year of the studievoorschotmiddelen for the development of teachers to become 'learning innovators'.

#### **Progress 2021:**

- 14 teachers trained in 2018-2019 (completed).
- 8-15 teachers trained in 2020-2021 (number dependent on possible cooperation with Wageningen University). Due to the Corona crisis the course did not start in 2020.

#### **Objective 2025:**

Train around 10 teachers every two years to become educational leaders in order to give teachers the opportunity to develop into 'learning innovators'.

In this project the *studievoorschotmiddelen* shall be devoted to the following main line of action up to 2024:

1. Training of 10-16 teachers every two years in the Leadership in Education training program.

### 3.6.2 Project 8: Professionalization of Teachers

For the sake of the quality of education, it is important for teachers to keep abreast of the latest intrinsic, didactic and digital developments. It is also important for the university culture to value the work of teachers, for example by paying more attention to educational achievements in academic education.

In mid-2019, the HRM Department started a project to professionalize the teaching profession. This project includes an optimization of the UTQ (BKO) training courses within the framework of Strategy 2030 and the new educational vision. The transition to Challenge-based Learning and the further expansion of educational innovation with ICT (the BOOST! program) has consequences for the way in which teachers organize and provide their education. In order to support teachers in their new role (from Teaching to Learning), the existing UTQ modules will be revised and digitized, so that teachers who have already obtained their UTQ can also participate in the modules.

A multi-year plan for the professionalization of teaching is being drawn up in line with the development of the educational vision and the recommendations from the evaluation of the UTQ.<sup>8</sup>

<sup>7</sup> See: <https://www.uu.nl/onderwijs/centre-for-academic-teaching-0/leergang-onderwijskundig-leiderschap>

<sup>8</sup> See Share point ITK-2

**Planned expenditure on the professionalization of teacher's project**

100K until 2021, rising to 300K per year of the *studievoorschotmiddelen* for teacher professionalization.

**Progress 2021:**

- Update UTQ policy.
- The UTQ curriculum is adapted to the new educational vision.
- Start of the development of learning communities for peer learning by and for teachers.
- Start of activities in the field of 'rewarding teaching excellence' leading to an improvement in the appreciation of education at TU/e as experienced by teachers.

**Objective 2025:**

improve the existing UTQ in line with the new educational vision and to develop and implement policy on professional teaching 'post-UTQ'. Teachers should experience that educational performance is more visible and measurable.

In this project the *studievoorschotmiddelen* shall be devoted to the following main lines of action up to 2024:

1. Improvement of the UTQ program and activities, particularly aimed at the realization of the new educational vision.
2. Development and provision of activities aimed at continuous professionalization for and with teachers.
3. Implementation of the HR policy in the area of recognition and appreciation of teaching in faculty's career paths.

**3.7. Summary of spending of *studievoorschotmiddelen***

The *studievoorschotmiddelen* are used via 8 TU/e-wide projects/programs, some of which already started in 2017 or 2018. Each year, the expenditure of the *studievoorschotmiddelen* is reassessed in the Quality Agreements Committee and discussed in the departmental and central employee and student representative bodies (see chapter 4). The Finance & Control department supervises the administration and declaration of the allocated funds. Appendix 4 contains the section on *studievoorschotmiddelen* from the multi-annual budget (Spring Memorandum 2020).

Table 1 summarizes the expenditure of the 2019-2024 *studievoorschotmiddelen*. Table 1 shows that up to 2024, more is allocated than the amount of *studievoorschotmiddelen* received. If the planned budgets are spent, there will be a deficit, but the Bachelor College and the Graduate School are guarantors for the necessary budget.

Due to an adjustment of the budget for the project Streaming (lower costs) from 2020 onwards, the budget for the project Teaching assistants and hybrid teachers has been increased. The quality agreements committee decided this on September 1, 2020.

Projects/programs (amounts x 1000 euro)	Planning 2019	Planning 2020	Planning 2021	Planning 2022	Planning 2023	Planning 2024
1. Program Challenge-Based Learning	500	500	2,000	2,000	2,000	2,500
2. Project Teacher/teaching assistants and hybrid teachers	1,000	1,221	1,650	2,650	2,650	2,950

3. Program Employability for Students	100	100	100	300	300	300
4. Project Pathways	100	100	100	100	100	100
5. Project Streaming	561	240	311	311	311	311
6. Program BOOST!	1,000	2,000	2,000	2,000	2,500	2,500
7. Project Leadership in Education	150	150	150	150	150	150
8. Project Teacher Professionalization	200	100	100	300	300	300
<b>Total projects</b>	<b>3,611</b>	<b>4,411</b>	<b>6,411</b>	<b>7,811</b>	<b>8,311</b>	<b>9,111</b>
<b>Budget studievoorschotmiddelen</b>	<b>3,042</b>	<b>3,593</b>	<b>6,101</b>	<b>7,615</b>	<b>8,040</b>	<b>9,075</b>
	-569	-818	-310	-196	-271	-36

Table 1: Overview of expenditure of *studievoorschotmiddelen* TU/e

Experience shows that it is not always possible to carry out planned projects, for example because teachers change jobs or because not enough teacher assistants can be recruited.

*Studievoorschotmiddelen* that have been budgeted but not spent come into a special-purpose reserve. This will prevent funds from being spent on anything other than improving the quality of education.

## 4. Programmatic approach and stakeholder involvement

Below, we provide insight into the programmatic approach that TU/e has chosen for the implementation of the plan. We then discuss the way in which various stakeholders are involved in the implementation and possible adjustments to the plan.

### 4.1 Managing the Plan for Quality Agreements

The Plan for Quality Agreements is executed through a program structure.

Projects/programs	Project owner	Project leader	Unit
1. Program Challenge-Based Learning	Deans BC and GS	Michael Bots	GA
2. Project Teacher/teaching assistants and hybrid teachers	Deans BC and GS	Lilian Halsema	GA
3. Program Employability for Students	Deans BC and GS	Kathinka Rijk	GA
4. Project Pathways	Deans BC and GS	Linda Scheel	ESA
5. Project Streaming	Director ESA	Jessica van de Ven	ESA
6. Program BOOST!	Deans BC and GS	Fred Gaasendam	GA
7. Project Leadership in Education	Deans BC and GS/ Departmental Deans	Lilian Halsema	GA
8. Project Teacher Professionalization	Deans BC and GS/ Departmental Deans	Rachelle Kamp	HRM
Program Leader Quality Agreements	Executive Board	Lilian Halsema	GA

A **program manager** is appointed to be responsible for the overall integrity and coherence of the program, and to develop and maintain the program environment in support of the projects within it. The program manager is responsible for the successful delivery of the program of which the projects are part. The role requires effective coordination of the projects and their inter-dependencies, including ICT and other resources, and any risks and other issues that may arise. The program manager is responsible for the annual monitoring and update of the Quality Agreements in consultation with the University Council and the Finance & Control department.

The **project owners** are the project's key stakeholders. The project owners are ultimately accountable for the success or failure of their projects and have to ensure that the program is focused on achieving its objectives and delivering the progress results. Throughout the projects the project owners are responsible for the execution of the project plans and need to be able to take a balanced view of the project on behalf of the wider organization.

The **project leaders** are responsible for:

1. Initiating  
This phase begins with a project plan, which outlines the objectives, purpose, and deliverables of the proposed project. Stakeholders are identified and preliminary requirements are documented. Key outputs include the project charter which assists with planning.
2. Planning  
A comprehensive project plan is developed which outlines the budget, scope, duration, deliverables and quality, communications, metrics, risks, and resources.
3. Executing  
When the project is started, the main activities associated with project execution include resource management, tracking work, team meetings and reporting on progress. The project leader should regularly assess progress to-date and adjust the original project plan as needed.



#### 4. Monitoring/Controlling

Monitoring is conducted in parallel with project execution. Using KPIs and other metrics defined in the project plan, the project leader monitors progress and performance.

#### 5. Closing

Once the project is completed, project documentation is updated.

### 4.2 Involvement and support of internal stakeholders

The central and decentralized employee and student representatives are involved in the quality agreements. TU/e has opted to make central, joint agreements on the use of the *studievoorschotmiddelen*. In this way, the greatest possible improvement in the quality of education will be achieved, in line with the 2030 strategy. The decentralized employee and student representative body has helped to provide the building blocks for the Plan for Quality Agreements.

The University Council has the right to agree on the budget and on new policies, such as Challenge-based Learning, BOOST! and Sustainable employability for students. In addition, students from the University Council are involved in the assessment of projects submitted by departments within the framework of the quality agreements. To advise on the quality agreements the University Council has set up a Quality Agreements Committee that consists of students and lecturers from the University Council, both Deans, a controller of the Finance & Control department and the program manager quality agreements. This committee meets five times a year to monitor the quality agreements and discuss the use of *studievoorschotmiddelen* for the coming years.

The five meetings of the Quality Agreements Committee are organized as follows:

#### **February: Preparation of the spring memo.**

- Evaluation of quality agreements: based on a report from the project/program leaders. Each project/program is examined to see whether the plans are being implemented and the goals are being achieved.
- The committee will examine whether the use of the *studievoorschotmiddelen* is being carried out in accordance with the Plan for Quality Agreements and whether any changes to this plan are to be expected in the coming year.

#### **May: Monitoring progress of projects/programs and inventory of new projects/programs.**

- Discussion of (financial) progress of projects/programs.
- New projects/programs and plans are inventoried.

#### **September: Monitoring progress of projects/programs and inventory of new projects/programs.**

- Discussion of (financial) progress.
- Any adjustments to the Plan for Quality Agreements and budget changes are prepared and then coordinated with the Joint Program Committee, University Council, the Executive Board and the Supervisory Board.

#### **October: preparation of the budget.**

- Any adjustments in the use of the *studievoorschotmiddelen* are determined by the Quality Agreements Committee and included in the budget.
- The budget then follows the normal cycle and requires the agreement of the University Council and the Supervisory Board.

#### **December: Preparation of the annual report**

- Discussion of (financial) progress of projects/programs.

- Preparation of financial accountability for the use of *studievoorschotmiddelen* in the annual report.
- In the appendix to the annual report, the University Council provides a report on the quality agreements.

In order to ensure a broad involvement in the organization, the following bodies are informed and/or asked for advice:

- The University Council involves the Department Councils, the study associations and students in the spending of *studievoorschotmiddelen* and any adjustments to the Plan for Quality Agreements.
- The Deans involve the Joint Program Committee, the departmental deans, the Executive Board and the Supervisory Board on the use of *studievoorschotmiddelen* and any adjustments to the Plan for Quality Agreements plus the monitoring of the objectives and expenditures.
- The (graduate) program directors involve the Program Committees in applications under the CBL, BOOST! and teacher/teaching assistants and hybrid teachers' projects.

There is regular consultation with the Supervisory Board about the quality agreements and the use of the *studievoorschotmiddelen*. Through the regular budget cycle, the Board supervises the use of the *studievoorschotmiddelen* and the implementation of the Plan for Quality Agreements.

In its annual report for 2018 and 2019 the University Council indicated that it had been sufficiently involved in the planning process:

## 5. Realization of the Plan for Quality Agreements (status July 2020)

In this chapter, the realization of the intentions is discussed for each project/program.<sup>9</sup> The feasibility of the quality agreements is discussed below. Detailed information on projects and finances is kept up to date via internet sites, which are made available to the Quality Agreements Committee and other stakeholders.<sup>10</sup>

### 5.1 Implementation of projects/programs

Below we indicate when the projects started and what is the state of affairs of the 8 projects.

#### 5.1.1 Project 1: Challenge-Based Learning program

This program started in 2019 with several experiments at course level. Program directors can apply once a year for experiments in the field of CBL. This application contains plans by teachers to improve their courses in the direction of the new educational concept.<sup>11</sup> These applications require the approval of the Departmental Program Committee and are aligned with (a member of) the University Council. The Deans BC and GS assess the applications, together with, among others, a student member of the University Council.

A university-wide experiment in the field of CBL has been developed by the participants of the Educational Leadership course 2018-2019.<sup>12</sup> This plan was discussed in the Quality Agreements Committee. This experiment will start in 2020 with a group of 90 students (10 from each department).

In 2020 a CBL program manager was appointed and a program plan in which the experiments are developed in conjunction with each other is being developed. It will detail the planning, implementation and evaluation of future experiments in the field of CBL. The University Council must give its consent with this CBL program plan. A task force has also been appointed to represent a diverse group of stakeholders. The assignment of the task force is to give advice on the implementation of CBL at the TU/e in 2024.

TU/e innovation Space has written a vision and business case in which CBL plays an important role. In the coming years TU/e innovation Space will develop into the centre of expertise in the field of CBL.

#### 5.1.2 Teacher/teaching assistants and hybrid teachers project

The program directors of a department can apply once a year for the deployment of teacher/teaching assistants. Applications often relate to support for teachers in providing education within a course or project. These applications require the approval of the Program Committee. The Deans of BC and GS assess the applications, together with, among others, a student member of the University Council.

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<sup>9</sup> See also Annual Report 2019: [https://assets.tue.nl/fileadmin/user\\_upload/Jaarverslag2019.pdf](https://assets.tue.nl/fileadmin/user_upload/Jaarverslag2019.pdf) (only in Dutch).

<sup>10</sup> Projects/programs 1, 2 and 6 via a TEAMS site, project/program 3, 4, 5 and 8 via a SharePoint site.

<sup>11</sup> See TEAMS-site for an overview of these experiments.

<sup>12</sup> See Share Point QA.

After the application has been submitted by the program director, assessed and approved by the Deans, the costs will be reimbursed based on the actual realization. The funds must be used additionally, i.e. not to cover costs that have already been included in the regular budget. Departments will formulate two objectives (KPIs) for each requested (group of) teacher/teaching assistants and program directors report annually on the results achieved to the Quality Agreements Committee (see chapter 6). In 2020, the program directors accounted for the deployment of TAs on the basis of the KPIs they formulated for each project. This accountability was discussed and approved by the Quality Agreements Committee.

In 2018 and 2019 the budget for teaching/teacher assistants was allocated. Topics for which TA's are used<sup>13</sup>:

- More intensive and personal education: digital testing, preparation for blended education, use of ICT resources such as Canvas (LMS), Kahoot!, Feedback Fruits. Digitization of modules, assignments and making web lectures.
- Education in small groups: guidance in small groups, assistance with peer review, use of master students as Bachelor Final Project Buddies.
- Interweaving professional skills in subjects and projects.

In addition, TU/e is taking part in a Brainport-based pilot 'hybrid teachers', the goal of which is to use the regional pilot to combine all available knowledge, learning experiences and capacities into a clear system. In 2020 and 2021, 10 hybrid teachers will be deployed at TU/e each year as part of this pilot.

In this pilot project TU/e cooperates with:

- Other educational institutions in and around Eindhoven
- ASML, DAF, FME, Kuijpers Installatie, TMC
- Brainport Development, Platform Bèta Techniek

From 2020, program directors will be able to apply once a year for the use of a hybrid teacher. The Dean BC and GS will assess the applications, together with, among others, a student member of the University Council.

### 5.1.3 Employability for students' program

The 'sustainable employability for students' program that started in 2020 brings together projects, some of which are already under way, so that these projects are developed in conjunction with each other. The new components are:

1. Communication/marketing plan: Design and implementation of a communication plan, which can be used to communicate clearly to (prospective) students and staff about the related employability policy.
2. Digital system: The possibilities of existing systems (including CANVAS) are being investigated and a digital system is being developed, with which students can keep track of their employability related activities. This allows students to follow their own professional identity development (inside and outside TU/e).
3. Self-assessment for (master) students: An instrument is developed/purchased with which master students can follow their own functioning and growth in the field of personal development and skills.
4. Activities in the field of career orientation: Evaluation of existing activities in order to share best practices.

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<sup>13</sup> See TEAMS site for an overview of the requested TA's.

5. Set up an evaluation system: Developing (standardized) questions in the curriculum surveys.

In addition, further research is conducted into the state of affairs and development of coaching and mentoring and professional skills. This research is aimed at policy development and the new policy will be implemented in all study-programs.

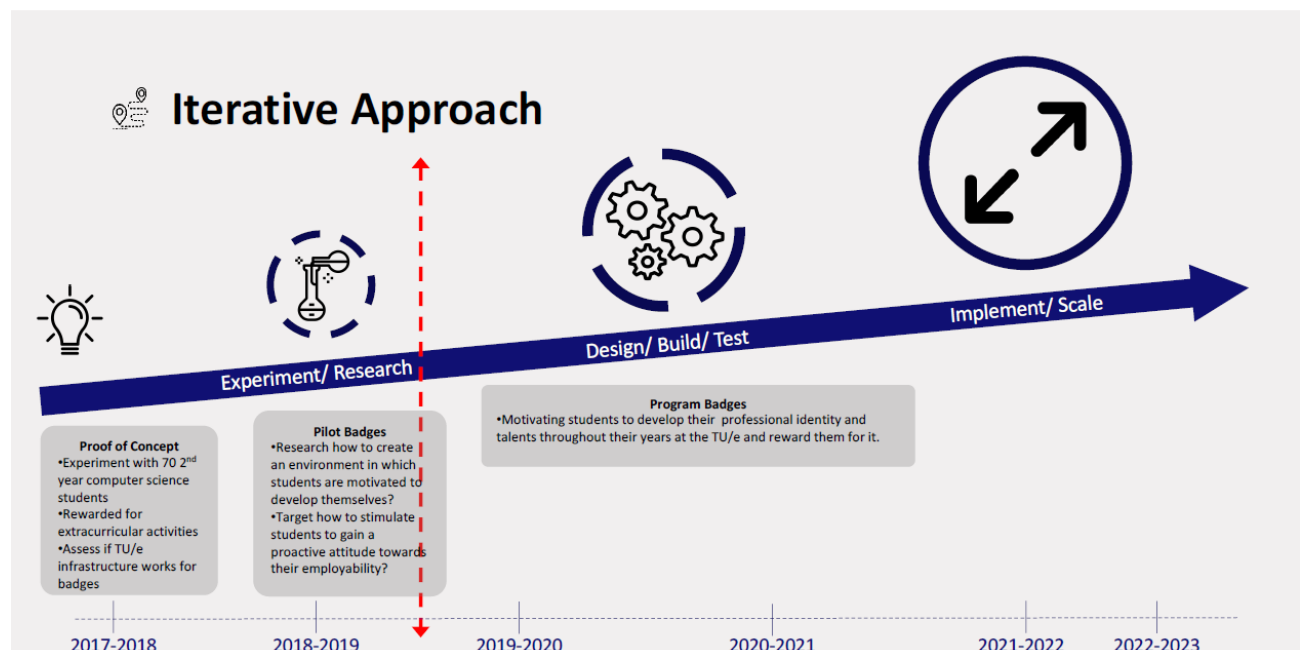
1. Coaching and mentoring: Development of a clear, feasible and coherent coaching/mentoring system. Developing a framework for coaching/mentoring for bachelor's and master's programs: Analysis of current activities, description of current and future roles and experiments in which the optimal combination of teacher-coaching, alumni-coaching, peer-coaching and professional coaching is sought.
2. Personal development and professional skills: Development of a framework for personal development and professional skills for bachelor's and master's programs, through an inventory, analysis and evaluation of all activities geared at the development of skills in bachelor's and master's programs.

A program plan was developed in 2020, which was discussed with various bodies in order to refine it. Representation from the field of work was heard in the discussion of the framework in the Company Advisory Board. With the students, the starting points and focus areas were extensively discussed in two sessions with the 'Ongoing Career Advice Body' (DCAO). The program plan was also discussed with the (graduate) program directors and the ESA managers. The feedback has been incorporated into a new version of the program plan, which will be submitted to the University Council for its consent in 2020.

#### 5.1.4 Project Pathways

The project Pathways started in 2017 with an experiment to see if badges can be used to stimulate students to work on their professional development during their studies. These experiments have shown that students find a so-called 'badge track' a useful tool. In addition, the communication about badges and the technical infrastructure will be further developed.

In the project plan, the planning for the coming years is detailed as follows:



The Pathways project is carried out by students together with the project leader. This project has been one of the projects within the sustainable employability for students' program since 2020.

### 5.1.5 Streaming project

A pilot on the streaming of lectures started in 2019. In the first quartile of 2019, 22 subjects were streamed and evaluated by means of course evaluations. In most courses, the average score (10 point scale) for streaming is between 8 and 8.5. In the pilot some panel discussions were also held with students who followed the streams. They indicated that they consciously opted for the streams, even though there is enough space in the lecture room. Often these students follow the stream with some fellow students somewhere on campus or at home, reporting that this way they can follow the teacher very well, even better than if they had been sitting in the lecture room. In short, students appreciate the streaming and it seems that a new learning method may have been unraveled.

To make streaming more sustainable, the focus is on the streaming of all lectures of a course. Students indicate in the evaluation interviews that they find this important. In the course evaluations attention is paid to the streams, and if they so wish, teachers are given pedagogic support if their course is streamed. Finally, a policy has been developed regarding the retention periods of the streams/video lectures (maximum 7 years).

The Eindhoven School of Education is investigating the (pedagogic) effects of streaming within the Bachelor College. The findings indicate that there is a relationship between student success scores and streaming. Students who score well look back relatively often. Students who do not pass a course look back relatively little. Students use the review of recorded lectures to prepare for interim and final exams. Teachers, however, see little difference in study results since streaming (and the ability to look back) began.

At the start of the streaming in 2017/18, the focus was on the large lecture rooms in the Auditorium. These rooms were designed at the time for the streaming of lectures. The focus is currently being broadened to include smaller rooms in Metaforum and Atlas, among other places, in which two smaller rooms will be set up for streaming via self-service. This does not require the intervention of student assistants and the teacher can stream and record the lecture via self-service.

The costs of streaming are expected to be very low in 2020, due to the Corona-crisis and the fact that there is hardly any streaming. The costs for 2020 have been adjusted to 240K. For next years we estimate 311K.

### 5.1.6 BOOST! program

The BOOST! program started as a bottom-up program. Once a year the program directors of a department apply for BOOST! projects. These can be (interdepartmental) projects for an adaptation in a course or group of courses. These applications require the approval of the Program Committee. The Deans BC and GS assess the applications, together with, among others, a student member of the University Council. If the applications meet the evaluation criteria, they will be honored.

Examples of activities in the framework of BOOST! are<sup>14</sup>:

- improving the quality of videos at lectures by optimizing video facilities;
- introduction of simulation software for labs so that simulations and exercises can be used in groups and independent of time and place;

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<sup>14</sup> For specific requests, see the TEAMS site

- the development of a generic Remote Lab, independent of time and place, in which tasks are performed using physical systems;
- development of a course that students can follow independently of location or simply on campus, with interaction between both groups, whereby examinations also take place on campus or by means of proctoring;
- development of online homologation modules to facilitate transfer to the university;
- development of a learning module in a gamification context for a better self-assessment in preparation for an exam;
- development of a platform for digital coaching, competence development, feedback and assessments;
- Developing tools for learning analytics to help students on their learning path.

The realization of the activities is monitored by a sounding board group (with students and teachers) and a steering group (also with students and teachers).

In the coming years, BOOST! will be transformed from a bottom-up program with a development approach into a program in which several TU/e-wide projects are implemented. This will leave room for departmental pilots and will make use of the experiences gained in the first phase, but can be better managed in terms of the strategic goals to be achieved.

#### 5.1.7 Leadership in Education project

In 2018-2019, the first educational leadership course started with 13 participants, 1 or 2 participants from each department and one participant from the Eindhoven School of Education (teacher training). The course is tailor-made for TU/e and is provided by the Centre for Academic Teaching of Utrecht University.

After the end of the program participants can:

- Make an adequate problem analysis of complex educational problems;
- Design and implement practical solutions to current educational development issues;
- Stimulate, organize and support the development of education and teaching.

Participants in this program are nominated by the departmental deans. The board of the Centre for Academic Teaching (supplemented by TU/e members) ultimately decides on the final admission to the course.

The next course was planned for 2020-2021. The goal is to have one participant per TU/e department and participants from Wageningen University. Due to the Corona-crisis the course will start in 2021-2022.

#### 5.1.8 Teaching Professionalization Project

This project started in 2019 with a project proposal for Teacher Professionalization. The result of this first project is that new and experienced teachers will be trained as up to date as possible with regard to the following:

- Challenge-based/multidisciplinary education;
- E-learning/blended learning;
- The teacher as a coach;
- Specific subjects that have emerged from the CBL experiments and that require further study.

The approach to the project will be implemented in the following way:

- Inventory regarding definitions, ongoing experiments and the wishes of departments.
- Analysis of the UTQ course and proposal of the necessary adjustments.
- Blended redesign of five UTQ courses. When adapting the content, examples of innovative education based on experiments at TU/e will be included. New knowledge clips will be included and two UTQ courses redesigned.
- The development of three blended modules for experienced teachers (blended learning, challenge-based and multidisciplinary education and the teacher as a coach). This concerns both the online modules and the additional training. Existing and newly designed UTQ material is used.
- Roll out modules and offer subsequent training. Roll out takes place based on the wishes of the departments. Preferably based on an implementation plan and in cooperation with learning communities and departmental teacher support staff.

The projects are followed by a steering committee including the Dean Bachelor College, two program directors, ESoE and the chain manager 'teacher support'. The redesign and evaluation involve former participants (teachers) and 'teacher support' staff.

In addition, work is being done on TU/e's teaching professionalization policy, which also pays attention to activities 'post-UTQ'. In the coming years, the focus will include the development of learning communities and peer learning for and by teachers. Furthermore, the results of the research project 'Rewarding Teaching Excellence' will serve as a basis for the further development of HRM policy and activities will be developed that contribute to recognition and appreciation of teaching.

## 5.2 Feasibility

Successful implementation of the quality agreements depends on various factors. Below, we distinguish between risks and possible mitigating measures.

Risk	Mitigation measures
Cultural change in higher education is difficult to achieve.	Ensure sufficient involvement of enthusiastic teachers. Training teachers, recognizing and valuing their achievements (annual appraisals, promotion opportunities). Celebrate successes!
Change in educational models is not happening, such as: from teaching to learning, more self-directed learning, Challenge-based Learning.	Further develop a didactic approach. More coaching oriented education so that students can follow their personal route; each student needs something different.
Continuous development of teachers: keeping up to date as a teacher is virtually impossible. New educational models and technologies are constantly emerging.	As part of the acceleration agenda (Versnellingsagenda VSNU-VH-SURF) a joint policy and processes are developed for increasing knowledge and discovering technology and the way in which teachers can keep up with it, among other things.
Review the role of the teacher. Teachers need to be able to use a variety of tools and actively learn to master methods, increasingly become guide and facilitator. The problem is that research is valued higher than education.	Increasing expectations on the part of academic staff require a human resources policy targeted at recognizing and valuing educational achievements. TU/e works on policy and processes to develop and implement this policy.
In departments and/or services, the projects are not carried out due to a lack of available staff.	Keep the <i>studievoorschotmiddelen</i> available through a special-purpose reserve. Addressing program directors on their role in the progress of the



	intentions. Replace projects that do not start as soon as possible with other projects. Take on external project/program leaders. Accept some delay in the implementation of the plans.
The projects/programs are closely related to the new educational vision, which includes a further elaboration of the Challenge-Based Learning concept. The process of creating support for the educational vision and the projects/programs in the Plan for Quality Agreements runs parallel. This can lead to interference in the planning of both.	The Plan for Quality Agreements is based on the 2030 strategy, in which the basic principles of the educational vision are set out. After an extensive round that has generated the necessary support among students and teachers, the new educational vision will be determined. It is then considered to be leading.

## 6. Monitoring

Financial monitoring takes place per quarter via a financial report that is drawn up by the Management Units. Based on these reports a consolidated financial report for TU/e will be drawn up with a separate paragraph for the *studievoorschotmiddelen* added in the template of the financial report. In this paragraph an explanation will be given by the Management Units concerning the expenses of the *studievoorschotmiddelen*. The financial progress will be compared to the annual budget along with a forecast of the expected expenses. The consolidated financial report is adopted by the Executive Board and discussed with the University Council.

The monitoring of effects takes place per project. In the overview below, we indicate which instruments are used to monitor the contribution of the projects/programs to the improvement of the quality of education.

Project/program	Specific instrument for project/program	Regular internal quality assurance	External quality assurance: NSE, alumni monitor	Educational research
<b>Challenge-Based Learning program</b>	Results of pilots	Course evaluations	NSE, alumni monitor	Evidence based research
<b>Teacher/teaching assistants and hybrid teachers project</b>	2 KPI's per requested (group of) TA's. Results of pilot hybrid teachers.	Course evaluations		
<b>Employability for students program</b>	To be decided (start 2020)	Curriculum surveys, audits (professional skills)	NSE, alumni monitor	In particular, research into coaching and professional skills
<b>Pathways project</b>	Results of pilots		NSE	
<b>Streaming project</b>	Research into the didactic side of streaming	Course evaluations and panel interviews		Research into the didactic effects of streaming
<b>BOOST! program</b>	Evaluation of subprojects	Course evaluations		Evidence based research
<b>Leadership in education project</b>	Evaluation of courses (UU)		NSE	
<b>Teacher professionalization project</b>	(interim) evaluation by stakeholders (teachers)		NSE	

The overview shows that the quality agreements are partly monitored via the regular quality cycle and associated stakeholders. In addition, specific instruments are also used to monitor whether the projects/programs contribute to the quality of education. For all projects and programs, in addition to specific steering committees and sounding board groups, the Quality Agreements Committee (and therefore the University Council) always monitors the implementation of projects and the use

of funds. Based on the monitoring and any developments, the intentions in the Plan for Quality Agreements can be adjusted by the Quality Agreements Committee.

Annual reports on the quality agreements are made in a separate chapter of the Annual Report. The University Council will report its findings in its own separate appendix to the Annual Report. In 2021, a mid-term report will be included in the Annual Report, indicating how far TU/e has progressed in realizing its intentions.

## Appendix 1: Elaboration of themes for Quality Agreements

### **More intensive and small-scale education (educational intensity)**

The relationship between teachers and students is crucial for good education. That is why it is important to further intensify the contact between the student and the teacher. This can be done, for example, by focusing on smaller groups and community formation, and by freeing up more time for personal feedback and individual coaching. In order to achieve this, a further increase in the number of teachers per student is necessary. The appointment of more teachers also makes it possible to link the content of education to social themes and research, thereby increasing the curiosity of students and their research competencies.

### **More and better coaching for students**

It is the responsibility of universities and colleges of higher education to offer equal opportunities to all students, regardless of background, origin or prior education. Not only occasionally, when things go wrong, but also proactively and structurally. For this purpose, intensive supervision and support by, for example, professionally trained tutors, study advisors, student psychologists, student deans and study career counselors is envisaged. Better coaching prevents problems and ensures optimal development for all students.

### **Study success**

All students with the capacity to do so must be given the opportunity to start and complete their studies successfully. Attention to the flow and accessibility of education for students in secondary education, equal opportunities, inclusive higher education, the prevention of drop-outs and the promotion of study success remain important themes for higher education. Based on an analysis of the student population's study success, an institution may decide to focus its attention primarily on certain groups of students and/or study programs and to formulate objectives for this.

### **Educational differentiation**

Universities of applied sciences and universities respond to the different backgrounds and ambitions of students and the needs of the employment market. They do this by offering a varied range of educational programs according to level (BSc, MSc). Investments are also made in talent programs, such as *honors* programs or programs in areas such as social engagement, entrepreneurship, the arts or sport. In addition, universities of applied sciences and universities can differentiate themselves by didactic concepts.

### **Appropriate and good educational facilities**

It is important that study facilities and infrastructure promote intensive and small-scale education. Digital resources can be better integrated into the educational process: students must be able to make optimum use of the educational environment, both physically and digitally, in their study process. The study facilities and infrastructure must be in line with the requirements of future education.

### **Further professionalization of teachers (teacher quality)**

Good and committed teachers are the key to high-quality education. It is possible to focus on further professionalization of teachers. This also includes greater appreciation of the activities of teachers, for example by paying more attention to teaching performance in academic education. Teachers must also be able to keep abreast of the latest substantive, didactic and digital developments. It helps to share one's own teaching resources and to be able to use those of others. Teachers should have more opportunities to develop themselves, for example, in the case of HBO teachers, by conducting their own research.

## Appendix 2: Spending *studievoorschotmiddelen* 2018

<b>Investment category</b>	<b>Amount 2018</b>	<b>Note to the proposed use of <i>studievoorschotmiddelen</i> 2018</b>	<b>Note to the involvement of employee and student representatives in the proposed use of <i>studievoorschotmiddelen</i> 2018</b>
<i>More intensive, small-scale education</i>	€ 1.2 million	Hands-on Education (incl. Innovation Space), community building and Teaching Assistants*	In the budget for 2018, the Executive Board made a proposal for the use of <i>studievoorschotmiddelen</i> . The budget and, specifically, the use of <i>studievoorschotmiddelen</i> were discussed with and approved by the council. The proposals included in the budget were then fleshed out. The council was then consulted again on this matter.
<i>More and better coaching for students</i>	€ 0.3 million	Guidance and coaching of students by peers and by teachers and by alignment with the employment market	See previous
<i>Invest in talent development: within and outside the study</i>	€ 0.2 million	Stimulate student entrepreneurship and student teams	See previous
<i>Appropriate and good education facilities</i>	€ 1.0 million	Among other things, further digitization and renewal of education such as Digital Assessment, Blended Learning, Learning Analytics, Online Education and Automated Feedback.	See previous
<i>Further professionalization of teachers</i>	€ 0.2 million	Improving quality of education through the provision of intensive educational leadership courses for, among others, program directors and directors of graduate programs	See previous

### Appendix 3: Pre-investments in the TU/e budget

In 2014 the budget for 2014 and 2015 provided for funding of €2.122K for the Bachelor College, while for 2014 €400K was reserved for the Graduate School. At the time, no financial resources for educational innovation had been included in the Bachelor College and Graduate School for the subsequent years. In 2014, €750K was budgeted for ICT in education, and no funding was provided for the digitization of education for the following years.

From 2015 onwards, TU/e has invested intensively in educational innovation and quality. Initial plans were drawn in 2015. In the final budgets 2016 en 2017 the budgetted amounts were adjusted in relation to these investments. The tabel below shows the final amounts from the approved budgets 2015, 2016 and 2017.

Table 1 does not include the regular growth of the SAM contribution for education based on the augmented performance of the departments.

Tabel 1: Pre-investments TU/e amounts x € 1.000)

<b>Pre-investments 2015</b>	<b>begroot 2015</b>	<b>Realisatie 2015</b>	<b>Verschil</b>
<b>Extra investeringen in Onderwijs (OW)</b>			
Onderwijskwaliteit	€ 6.288	€ 5.848	€ -440
Onderwijsgebonden onderzoek	€ -	€ -	€ -
Moderne infrastructuur	€ 1.875	€ 2.499	€ 624
	<b>€ 8.163</b>	<b>€ 8.347</b>	<b>€ 184</b>
<b>Pre-investments 2016</b>			
	<b>begroot 2016<sup>1</sup></b>	<b>Realisatie 2016</b>	<b>Verschil</b>
<b>Extra investeringen in Onderwijs (OW)</b>			
Onderwijskwaliteit	€ 6.080	€ 4.692	€ -1.388
Onderwijsgebonden onderzoek	€ -	€ -	€ -
Moderne infrastructuur	€ 1.875	€ 3.769	€ 1.894
	<b>€ 7.955</b>	<b>€ 8.461</b>	<b>€ 506</b>
<b>Pre-investments 2017</b>			
	<b>begroot 2017<sup>1</sup></b>	<b>Realisatie 2017</b>	<b>Verschil</b>
<b>Extra investeringen in Onderwijs (OW)</b>			
Onderwijskwaliteit	€ 4.663	€ 4.860	€ 197
Onderwijsgebonden onderzoek	€ -	€ -	€ -
Moderne infrastructuur	€ 1.875	€ 4.478	€ 2.603
	<b>€ 6.538</b>	<b>€ 9.338</b>	<b>€ 2.800</b>

<sup>1</sup> The presented amounts are the definitive budgeted amounts in the concerning year, these amounts deviate from the amounts presented in the initial plans.

Appendix 4: Studievoorschotmiddelen in the Multi-annual Budget (Spring Memorandum 2020)

	VJN 2020				
<b>Verdeling SAM 2.0</b>	2020	2021	2022	2023	2024
<i>Faculiteiten:</i>					
Fac. OW	71,935	71,938	72,856	73,546	75,404
Fac. OZ	47,957	47,959	48,571	49,031	50,270
<b>Totaal naar faculteiten</b>	<b>119,892</b>	<b>119,897</b>	<b>121,427</b>	<b>122,577</b>	<b>125,674</b>
Afroming Servicecharters	-12,233	-12,233	-12,233	-12,233	-12,233
<b>Netto naar faculteiten</b>	<b>107,659</b>	<b>107,664</b>	<b>109,193</b>	<b>110,344</b>	<b>113,441</b>
<i>Strategie:</i>					
Doeluitkeringen	8,861	8,779	8,641	8,617	8,617
Studievoorschotmiddelen	3,537	6,006	7,496	7,916	8,934
Instituten	11,474	11,471	11,471	11,347	11,347
Afroming Servicecharters	-269	-269	-269	-269	-269
Centrale Middelen	14,733	15,098	16,463	16,841	17,169
<i>Teveel verdeeld</i>	<i>-5,823</i>	<i>-1,080</i>	<i>0</i>	<i>0</i>	<i>0</i>
<b>Totaal Strategie</b>	<b>32,513</b>	<b>40,006</b>	<b>43,802</b>	<b>44,453</b>	<b>45,798</b>
<i>Diensten en vaste lasten</i>					
Vaste lasten**	55,893	55,275	55,971	59,428	59,905
Diensten	51,698	51,723	52,909	53,963	54,503
Service charters	12,504	12,504	12,504	12,504	12,504
<b>Totaal Diensten en Vaste lasten</b>	<b>120,094</b>	<b>119,501</b>	<b>121,384</b>	<b>125,895</b>	<b>126,911</b>
<b>TOTAAL</b>	<b>260,264</b>	<b>267,169</b>	<b>274,377</b>	<b>280,690</b>	<b>286,149</b>
Incidentele lasten (inzet reserves)	1,657	1,598	1,835	553	1,103
<b>TOTAAL TE VERDELEN</b>	<b>261,921</b>	<b>268,767</b>	<b>276,212</b>	<b>281,243</b>	<b>287,252</b>

\* Incl. Acctec (€ 1.2 mln.)

\*\* Betreft de vaste lasten van DH, DIZ, EPC, verzekeringen, rente en collectievorming, van IMS is nog geen uitsplitsing beschikbaar