Explanatory note to the key indicators of the Strategic Plan 2021-2025 of Tallinn University of Technology

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Chapter 1: An overview of the key indicators of the Strategic Plan 2015-2020 of Tallinn University of Technology

Table 1 shows the time series for the key performance indicators set out in the Strategic Plan 2015- 2020 and comparison with the set targets. Some data on 2020 are not yet available.

Table 1. Key performance indicators and results 2015- 2020

	Key performance indicator	Baseline	2015	2016	2017	2018	2019	2020	Target
1	Graduates' satisfaction with their studies	3.92	3.92	3.89	3.96	3.99	4.04	4.02	≥ 4.1
2	Ratio of the average income of the graduates of master's studies to the average salary in Estonia	1.5 times the national average	1.474	1.423	1.571	1.518	1.533	2022 spring	1.65 times the national average
3	Annual number of high-level articles per an academic staff member with a PhD	0.6	0.67	0.67	0.73	0.8	0.87	0.94	1
	Annual citations received by high-level research articles per an academic staff member with a PhD	19.5	20.8	25.8	28.6	30.5	33.4	35.2	23
4	Number of defended doctoral theses	62	62	75	62	77	66	55	90
5	Share of new academic staff in the total number of academic staff	7.50%	n/a	7.50%	8.70%	8.32%	9.93	10.02%	1000%
	Share of new academic staff with a PhD (excluding early stage researchers)	3.10%	n/a	3.10%	3.40%	5.89%	6.18%	3.21%	5.00%
6	Revenue from R&D contracts entered into with local and foreign customers (million euros)	5.6	5.6	5.1	5.4	7.1	10.6	11.0	7.5
	Revenue from R&D project agreements entered into with local and foreign customers (million euros)	16.6	6.8	15.3	16.7	16.8	17.4	18.4	17.4
7	Reputation of the university in Estonian society	86	86	87	90	90	92	85	90

The Rector provided the Council an overview of the achievement of the performance targets laid down in the Strategic Plan every year. The Rector provided a more detailed overview of the entire period in June 2020 and presented an interim report on the results in spring 2018. A general summary of the university's activities and results was provided in the Annual Report, which is available to the public. In addition,

sectoral annual reports are prepared on teaching and learning, research and development activities and service to society. In addition to the agreed key performance indicators (see Table 1), other important indicators of the university's activities are monitored. The university's reports and figures (incl. Power BI reports) are available both on the university's external website and on the intranet.

The analysis of the implementation of the key performance indicators set out in the Strategic Plan 2015–2020 was supplemented at the beginning of the development process of the new Strategic Plan (2021–2025), which is briefly summarised below.

The analysis of key indicators for teaching and learning showed a stable upward trend:

Graduates' satisfaction with their studies

The target was not achieved, but the satisfaction score showed a positive trend. In 2020, the average score of graduates' satisfaction with studies was 4.02, which is slightly lower than in the previous year, but the difference is not statistically significant (the response rate was also significantly lower). The management board recommended **not using this performance indicator in the context of the university's Strategic Plan** and made a suggestion to specify the methodology and monitor graduate satisfaction scores in the framework of the implementation plan for two reasons:

1) determining a specific quantitative indicator by applying a specific methodology does not provide the possibility to flexibly make changes to the questionnaire or questions if necessary. This was also shown by the change made in 2019, when the number of questions, based on which the aggregate is calculated, was significantly reduced and it cannot be stated with 100% certainty that the positive trend was not due to this. In addition, the data analysis has shown that the use of an aggregate is not justified, because the inter-relations between the descriptors sometimes overlap or are mutually exclusive and establishing a single aggregate based on 20 questions and tracking its change is not informative enough and does not provide any substantial value.
2) The response rate varies significantly, which means that changes need to be made to the process of requesting feedback. This will take time and it did not seem sensible to include for the next 5 years a performance indicator, which is likely to be subject to many changes, in the context of the Strategic Plan.

Ratio of the average income of the graduates of master's studies to the average salary in Estonia

The target was not achieved partly because the data on average income are not 100% final (the Ministry of Education and Research collects data based on a certain methodology and the data do not reflect the income of all graduates), partly because the data are a couple years old. It is important for the university to monitor its graduates' competitiveness in the labour market as well as their contribution to society and economy. Income is certainly one indicator that makes it possible to assess, on the one hand, whether graduates are valued in the labour market and whether there is a need for labour in a specific field, and, on the other hand, the extent to which our alumni contribute to the Estonian economy, e.g. through taxes. Although this is an indicator that is difficult for the university to influence directly, **it was decided to continue monitoring the key indicator of the average income of master's graduates also in the next period of the Strategic Plan.**

The key indicator is a coefficient that shows how many times the average income of master's graduates is higher than the average salary in Estonia in the respective calendar year. To calculate the average income of master's graduates, we use data obtained from the Ministry of Education and Research. The average monthly income includes salary, remuneration of a member of the management board and income received on the basis of a contract for services (data of the Tax and Customs Board). The indicator is calculated by dividing the amount of annual income by the number of months in which this income was received. Two methods can be used for obtaining the data on which the calculation is based:
1) Data on graduates from 2005 until the respective calendar year are taken into account (e.g. in 2018, the average income of graduates of the years 2005-2017 has been taken into account), from 2021 onwards the average income of graduates of the last 10 years is taken into account;
2) It is also possible to view the income of graduates in the calendar year following graduation (e.g. the income of the graduates of 2017 in 2018). The baseline has been calculated according to the first methodology - if it is changed, the time series is not comparable.

Share of new academic staff with a PhD

The organisation of studies at the university meets the requirements if teaching is carried out by academic staff, who meet the qualification requirements established by legislation and their number is sufficient to achieve the goals and learning outcomes of the study programme, considering their responsibilities, the scope of teaching and research and the number of students supervised. Upon preparation of the Strategic Plan, great attention has been paid on integrating research activities and findings into studies and research-based learning. In order for the teaching at Tallinn University of Technology to be research-based on the one hand and practical on the other, it is necessary to find a balance between the involvement of the academic staff and practitioners from outside the university in teaching. The university is responsible for carrying out teaching and developing studies that meet contemporary quality requirements at the three levels of higher education, which would not be possible without academic staff holding a PhD. The share of new academic staff with a PhD is an important indicator to monitor the proportion and age structure of international researchers participating in international networks, which in turn are important for increasing competitiveness. The indicator has helped attain the goal; too high academic staff turnover rates would hinder the achievement of the objectives related to consistency and teaching in Estonian and developing Estonian as a research language. **In the new Strategic Plan, the abovementioned indicator will be replaced by a performance indicator that reflects better research-based learning and quality of teaching.**

The key performance indicators for research indicated rapid development in the field. The implications of changes made in doctoral studies will be apparent after some time.

High-level articles

The trend in the period has been clearly positive, the result is very good considering the baseline and close to the target. The target can therefore be considered to have been mostly achieved. The date when data are collected has been brought forward, but the methodology has not changed in other respects. The earlier date of data query (compared to the data query for the baseline value) has affected the result, but not significantly.
Due to the change in the emphasis of the goals of the university's Strategic Plan 2021-2025, this indicator will not be monitored further.

Number of high-level citations

The target of the selected indicator has been exceeded. It must be taken into account that the number of citations depends more on the content and topic of the specific articles (the more popular the topic, the bigger the number of citations) and might not be directly correlated with the quality. The number of citations varies from field to field: if you publish papers in the more cited fields, the figure will increase without a significant increase in the number of articles. Without taking a closer look at the field, it cannot be established why there are so big differences in the trends of two key performance indicators. Another reason behind the increase of the number of citations is publication with internationally recognised co-authors. The number of international co-authored publications has also increased significantly compared to baseline. The target set for this key performance indicator was probably too modest.
The key indicator will not be used further, because the number of citations depends on very many factors and it is difficult to interpret the result across disciplines. The key performance indicator will be included in the implementation plan and will be taken into account mostly upon individual attestation.

Number of defended doctoral theses

Based on the accreditation data of the summer of 2020, the number of defences should increase in 2021 compared to 2020. The low number of defences in 2020 is probably the result of a combination of several factors. The decisions of the previous management concerning doctoral studies have not yet been fully enforced and therefore their positive impact on the total number of doctoral graduates has not yet become apparent. In the years 2010–2015, an average of 130 new doctoral students were admitted per year, whereas in 2016, the university went over to a new doctoral students admission system and the number of students admitted dropped to 71. In 2017, new attestation requirements and criteria were established, which led to exmatriculation of many doctoral students who had exceeded the nominal duration of studies. This means that also the students who could at some point be potentially ready for their thesis defence, discontinued their studies. The global COVID-19 situation certainly affected the final result of defences in

2020. **The key performance indicator will be used further in the period of the Strategic Plan 2021-2025.**
Doctoral students are divided between schools based on the department of the principal supervisor. If the principal supervisor is employed in the National Institute of Chemical Physics and Biophysics, the school of the doctoral student is determined based on the study programme. To calculate the number of defended doctoral degrees, the data of the study information system ÕIS are used.

Revenue from R&D project agreements

The target has been achieved. The amount of competitive research funding is planned to be increased. A package of measures to support successful application of research groups for competitive funding is under preparation to help research groups realise more successfully the unused potential of raising funds. One target group is research groups that have not actively applied for funding or have not received positive decisions; a package of measures is under development to support researchers more effectively.
The key performance indicator will not be used further. A more relevant key performance indicator will be introduced to measure successful application of competitive funding per an academic staff member with a doctoral degree.

Business cooperation increased more than expected.

Revenue from R&D contracts (incl. income from services)

The revenue from business contracts has increased as expected and has exceeded the planned target. The national smart specialisation support measures, which have significantly enhanced cooperation between the universities and enterprises in launching R&D-intensive projects, play an important role in this. For example, in 2020, 137 business agreements in the total amount of 11.17 million euros were concluded, of which 11 contracts in the amount of 4.77 million euros, i.e. 42.7% of the total volume of contracts were concluded with companies who received funding from the smart specialisation support measure. If similar measures are not introduced in the new funding period, there is a high risk of revenue slowdown, which has made the university seek new additional opportunities both in applying for international competitive funding and in commercialising intellectual property. International cooperation and conclusion of interdisciplinary agreements by involving the competencies of other Estonian universities is a goal that is also supported by the Astra+ measure opening in 2022.
The key performance indicator will be used further. The key performance indicator measures the revenue received during a year for projects and contract work financed by and carried out in the interests of national and foreign companies and public sector entities. The data are obtained from Delta and the accounting system and displayed on the intranet under the Power-Bi reports.
New additional opportunities for raising revenue are connected with both applying for international competitive funding and commercialising intellectual property. Establishment of the European Digital Innovation Hub (EDIH) in Estonia, where Tallinn University of Technology is a leading partner, forms a significant share of revenue from contracts and services.
The university will definitely continue with the innovation voucher and development voucher measures in order to bring more new companies to the university and thereby boost research intensity and create competitive advantages, i.e. with the aim of growing future regular customers.

Reputation of the university

Reputation of the university in Estonian society (TRIM)

The reputation is steadily improving. According to survey experts, the decrease in 2020 can be explained by the long-lasting reputation crisis related to the funding of the OGI project that started in autumn 2019 and the media coverage of the rector's elections during the survey, where the fall in international rankings and the reputation crisis were often pointed out. However, the admission of new students to the university in the summer of 2020 was successful and the reputation improved among young people.
The key performance indicator will be used further. This indicator is obtained from the annual reputation survey of Estonian universities conducted by Kantar Emor, where the aggregate index score of reputation among the Estonian population is measured using TRI*M method. The index takes into account various aspects of the reputation of universities. It is possible to monitor the reputation by different groups of respondents, but the core indicator for the university is the reputation among the Estonian population as a

whole. The survey provides an opportunity for comparison with other Estonian universities that have commissioned the survey. The reference base of the previous years is also available.

Chapter 2: Changes to the key indicators of the Strategic Plan 2021-2025

The new Strategic Plan focuses on increasing the quality, which is also reflected in the selection of key indicators. The emphasis is on research-based learning, reduction of the drop-out rate and the competitiveness of the graduates (key performance indicators for teaching and learning). Special attention is paid to the teaching staff with a PhD and the quality of teaching and supervision in various study programmes (from professional higher education programmes to master's programmes). As regards the key performance indicators for research, the focus is on increasing the share of high-level (Q1) publications and increasing competitiveness. The focus is still on raising the next generation of researchers as the prerequisite of strategic sustainability – as the targets were not achieved in the previous period, a whole package of measures is introduced in the implementation plan to raise the next generation of holders of a doctoral degree. In the field of entrepreneurship, greater emphasis than previously is placed on commercialisation of science, knowledge transfer and being an engine of Estonian economy. In addition to the abovementioned traditional metrics, the focus is on developing a strategy for sustainable and climate-smart university, with the ambition to be a role model in a broader sense. After major reforms and changes, it is important to pay attention to the most valuable asset - students and employees. Therefore, the aim is to contribute to reputation, satisfaction, visibility, equal treatment as well as international competitiveness.

Additional key performance indicators for learning and teaching

Share of students graduating within the nominal period of study

The share of students graduating within the nominal period of study is an important criterion upon funding educational activities by the state – the indicator has the highest weight in the performance-based funding component of activity support. In order to remain competitive, special attention needs to be paid to the reduction of the drop-out rate, ensuring more even level of entrants and supporting motivated learning. According to the data of the Estonian Ministry of Education on students graduating within the nominal duration of study plus one year, TalTech's share of students graduating within the nominal period of study among higher education institutions is 28.4%, whereas the share of higher education funding is 30.2%.

The share of students graduating within the nominal duration of study is calculated as a proportion of students graduating within the nominal duration of study plus one to two years of the total number of students admitted to higher education studies. Bachelor's, professional higher education, integrated, master's and doctoral studies have been taken into account. The nominal duration plus one year is calculated for study programmes with a nominal duration of less than 4 years; the nominal duration plus two years is calculated for study programmes with the nominal duration of 4 and more years. Graduating within the nominal duration +1 year/+2 years: time studied = date of graduation - date of commencement of studies. The number of students enrolled as of 10.11.

At least 75% of the volume of the master's programmes is taught by academic staff members with a PhD or an equivalent qualification

The common thread in the Strategic Plan is research-based learning and quality. Therefore, it is also necessary to move from quantitative key indicators to more qualitative ones.

Different weights are applied for proportions of staff members with a PhD at different study levels. In master's study programmes the teaching workload of academic staff with a PhD is a key indicator of the Strategic Plan, in bachelor's, integrated and professional higher education study programmes the relevant workloads are indicators of the implementing plan.

In master's study programmes, the key performance indicator measures the share of the workload of employees with a PhD or an equivalent qualification in the total workload of the study programme. The workload of a study programme includes scheduled classroom teaching and supervision of graduation theses. The workload of a supervised graduation thesis is 50 academic hours. Data from the study

information system (ÕIS) and the human resources management system (NAV) are used to measure the key performance indicator.

Total income from the rendering of education services

The primary target for income from the rendering of education services set out in the Strategic Plan is 70.9 million euros by 2025, i.e. an increase of 21.4% compared to 2021, which is comparable to the projections of nominal gross domestic product (GDP) growth in Estonia for the next years published by the Ministry of Finance.

The goal to receive total income from the rendering of education services in the amount of 58.4 million euros has been set out in the approved budget of Tallinn University of Technology for 2021. In 2021, the activity support allocated by the state for studies at the level of higher education forms 78.4%, tuition fees for degree studies 6.2%, revenue from continuing education courses 5.4% and revenue from project support for educational activities 10% of the income of Tallinn University of Technology from the rendering of education services.

The target for income from the rendering of education services has been set based on the total income target in absolute figures. It is important to be able to increase income as a whole, targets for sub-categories are set in the course of annual budget planning.

The ambition of the university is to improve the quality indicators of teaching and learning, incl. to increase the share of students graduating within the nominal duration of studies from current 50% to at least 60% by the end of 2025. Since the number of students graduating within the nominal duration of studies is a performance indicator that has the biggest weight in obtaining state funding, improving this performance indicator will help increase the university's income base. In this respect we also depend on the development of other universities in Estonia: we can increase our income base and gain market share only if other universities do not improve their performance indicators compared to us or improve them at a slower pace.

The market shares of universities in the distribution of state funding for higher education in 2021 are:

University	2018-2020 Share of baseline funding
Estonian Academy of Arts	5.58%
Estonian University of Life Science	8.98%
Estonian Academy of Music and Theatre	4.77%
Tallinn University of Technology	30.23%
Tallinn University	14.31%
University of Tartu	36.13%

An additional goal in financing educational activities (the target shall be set in the implementation plan of the Strategic Plan) is to slightly increase market share and achieve the target of 30.5% by 2025.

Since the results of the last three years are taken into account in calculating state funding and shares, the state funding mechanism does not allow for sudden and big changes in market shares (unless any structural changes are made in the areas of responsibility, etc.).

Important factors for growing the income base:

- If the number, weight, etc. of performance indicators is changed at the national level, we must ensure that the changes contribute to the increase of funding of Tallinn University of Technology.
- To replace the terminating funding sources (IT Academy Programme, EIT Raw Materials, Erasmus+, ASTRA Programme, higher education specialisation scholarships in smart specialisation growth area, etc.), we need to find new sources of income to maintain income diversity.

- Our goal is to establish the Academy of Engineering and apply for additional funding for this purpose.
- Our goal is to agree on a long-term solution at the national level for additional (college-oriented) funding in support of regional educational activities.
- We will proactively, in cooperation with the universities belonging to the EuroTech Universities Alliance, submit joint applications for study and research projects.
- We will annually adjust (increase) the sales prices of paid services (the prices of paid courses and continuing education courses, the prices of ECTS credit points, the prices of re-registration for courses, etc.).
- We consistently step up publicity work at all levels of management of the university (departments, schools, the Rectorate, the Council) in order to ensure that the state will provide/restore funding of the higher education programme in the same or similar growth rate with the nominal gross domestic product (GDP).
- Specific annual activities shall be defined in the process of preparing annual budgets and budgetary strategies.
- If economic growth is not realised and/or the state decides to cut back on expenditure (e.g. if the situation caused by the Covid-19 pandemic remains unresolved for years, etc.), the targets of the key performance indicators in the Strategic Plan and implementation plan shall be adjusted.

Additional key performance indicators for research

Annual number of Q1 category articles per an academic staff member

The goal set in the Strategic Plan to increase quality across the university increases the university's competitiveness by involving various resources (the best students, the best researchers, competitive funding, high-impact projects).

Having regard to the goals of the Strategic Plan 2021-2025, a new key performance indicator has been introduced to measure the quality of research: the number of articles published in high-impact journals. We will measure the number of papers per an academic staff member with a PhD published in journals ranked in the first quartile (Q1) based on the impact factor (articles in journals, articles published in conference proceedings, book chapters, etc.). The same methodology can be applied to carry out comparative analysis of different structures and freely chosen samples and individuals.

In accordance with the previously made strategic decisions, we use the SciVal tool based on the publication database Scopus, which is widely applied at the university to distribute journals by quartile based on their impact factor. The key performance indicator measures the number of publications in Q1 (quartile by impact factor) in the year of publication divided by the number of academic staff members with a PhD as of the end of the respective year. To enable comparison of sources in different research fields, we use the SNIP (Source Normalized Impact per Paper) methodology, which accounts for field-specific differences in citation practices, to correct for differences between research fields. SIP is calculated once a year using Scopus data. The baseline of the key performance indicator is the average value of the years 2017-2020.

The volume of R&D projects per FTE of an academic staff member with a PhD (thousand euros)

One of the goals set out in the Strategic Plan 2021-2025 of Tallinn University of Technology is to increase the amount of university's competitive funding. We will measure the fulfilment of this goal in the field of R&D using a new key performance indicator, which indicates the increase of competitiveness, the ability to apply for funding and the quality of research. The performance indicator measures the amount of R&D projects started in the year per FTE of an academic staff member with a PhD. The key performance indicator takes into account the increase and decrease of the number of researchers and provides a good benchmark for comparing the university's structural units and research groups and thereby enables making informed management decisions. The ability to successfully apply for competitive funding reflects the level of research, as applications based on high-quality research have higher success rates. Thereby the key indicator supports the overarching goal of the Strategic Plan to improve quality.

The input data for the key performance indicator are obtained from the document management system Delta; the data of previous years have been obtained from the document management system DocLogix

(2017-2019). The data are supplemented with information on the grant agreements signed with the Estonian Research Council (ETAG), which is obtained from the Estonian Research Information System (ETIS). Information on academic staff with a PhD is obtained from the human resources management system (NAV) and is presented as of 31.12. The results are indicated in thousands of euros.

Additional key performance indicators for entrepreneurship

Number of established spin-off and start-up companies

The aim is to measure the entrepreneurship of the university and it is directly related to the goal set out in the Strategic Plan: "The university's spin-off and start-up companies are highly regarded internationally". The establishment of new start-ups is planned to be supported by creating and offering team development programmes and pre-incubation services developed by researchers and other members of the university (mentors, events, etc.).

The key performance indicator measures the number of spin-off and other start-up companies of Tallinn University of Technology registered during the year, the registration of which is organised and the register of which is kept by the Technology Transfer Office.

A spin-off company (a research-based start-up company) of Tallinn University of Technology is a commercial undertaking in which the university or its member holds shares and which uses the results or know-how of the university's research and development in its activities. Other start-up companies are non-research-based start-ups of Tallinn University of Technology, i.e. commercial undertakings, at least one founder of which is a member of the university and which have been established while studying/working at the university or within 1 year after graduating from the university. (The definitions may change depending on the national policy and the definitions agreed upon). The key performance indicator supports the input indicator of overall rating as well as the outcomes of project-based learning and entrepreneurship education.

Number of licence agreements

The number of licence agreements shows the number of episodes of commercialisation that will lead to income from sales of licences and patents in due course. As of the end of 2020, the university had entered into three license agreements for granting the right to use inventions:

1. Injeq OY, invention *"Method, device for broadband analysis of systems and substances"* EP2565654, US10698023B2
2. SafeToAct OÜ, invention *"Anatomical kidney phantom with calyxes for drainage training in interventional radiology"* US10083632B2, EP2797068B1
3. In December 2020, a license agreement was signed with I AM HYDRO GmbH.

Although the overall goal is to maximise income from the sale of licenses, it is essential at first to work with companies, engage in active sales (including develop the capacity to find suitable business partners) and commercialise knowledge in order to enter into licence agreements.

Data on the number of concluded license agreements can be obtained from the document management system Delta.

By a licence agreement regarding university-owned knowledge, Tallinn University of Technology (the licensor) grants another person (the licensee) the right to exercise the rights arising from intellectual property to the agreed extent and on the agreed territory, and the licensee undertakes to pay a fee (the licence fee) therefor.

Number of patents a year/patent applications filed per year

We protect our intellectual property and organise legal protection of industrial property in a way that best serves the interests of inventors and society, be it through spin-off companies, granting licences or selling of patents. The research groups of the university submit on an average ten notices on the creation of new inventions per year. In the case of a new invention, first a priority patent application is filed, for example in Estonia or the USA. If the expert committee on industrial property of Tallinn University of Technology decides that legal protection must be sought for the invention also in other countries, an additional application, e.g. European or international patent application (under the Patent Cooperation Treaty - PCT)

shall be filed based on the priority application within 12 months. It takes an average of five years to process a patent application.

The more we focus on commercialisation and conclusion of licence agreements, the greater the need to protect inventions in other countries, which justifies higher targets in the number of patents.

The patent portfolio must be seen as a dynamic, not a cumulative, pool of assets. Every year, the patent portfolio is supplemented with patents, for which a patent application has been filed earlier, a year or several years ago. At the same time, each year the expert committee on industrial property makes decisions to waive the rights to patents that do not have a commercial perspective or have not been commercialised.

So far, the number of notices published on the creation of new inventions has been stable and it is associated also with the number of patent applications filed and patents granted. In the last few years, the number of patents in the patent portfolio has decreased but the value of the patent portfolio has not reduced.

Number of patents - the key performance indicator shows the number of new patents acquired by Tallinn University of Technology annually. Data on the number of valid patents can be obtained from the Patent Office (patent register), additional records are kept by the Technology Transfer Office.

Number of patent applications filed in a year - the key performance indicator shows the number of patent applications owned by Tallinn University of Technology that have been filed annually. The Technology Transfer Office keeps records of filed patent applications.

Additional key performance indicators for the overall development of the university

Climate neutral university 2035 - carbon footprint per person

The Government of the Republic of Estonia has given its consent in principle to support the European Union's goal to achieve climate neutrality by 2050. The European Union has summarized its long-term climate goals in the document "'A Roadmap for moving to a competitive low carbon economy in 2050". On 11 February, 2021, the new Estonian government approved the 100-day action plan focusing on smart economy, green Estonia and educated and smart people. One of the objectives of the action plan is to develop a roadmap for achieving climate neutrality by 2050 and set it as a national target. Tallinn University of Technology as the only university in Estonia providing a synergy of engineering, technology, economy can act as a role model and a pioneer in society. The ambition of the university to become climate neutral by 2035 requires considerably more intense cooperation than before between different parties as well as significant investments.

The goal is to lay down the numerical values of the key performance indicator by 2022, the baseline and more precise short-term goals, incl. the milestone for 2025. To this end, the energy balance of the buildings and a comprehensive renovation plan shall be prepared in order to set out the specific stages by which the university seeks to achieve climate neutrality as well as the specific investment needs. The transportation-related carbon footprint is determined using both questionnaires and modern positioning solutions.

The ultimate goal is a carbon-neutral university by 2035. It is not yet possible to fix the baseline for 2020, as raw data for the indicator have not been systematically collected. The target for 2025 will be fixed at the beginning of 2022. The required input must be collected and systematised by this time.

Share of voice

According to the Strategic Plan, the vision of the university is to stand out, be distinguishable and to be equal to the best technology universities in Europe thanks to its smart solutions for creating a digital and climate-neutral future. The university also aims to be open and visible in its activities in order to support the knowledge-based society and bring the importance and role of engineering sciences closer to people.

The share of voice indicates the share of visibility of Tallinn University of Technology on Estonian traditional media (television, radio, print media and online) in the comparison of the three largest Estonian universities (TalTech, the University of Tartu, Tallinn University). All Estonian media reports containing the keywords, information on research, studies, cooperation projects, organisations and other information related to the abovementioned universities are monitored.

The share in the IV quarter of 2020 (18%) has been set as the baseline of share of voice, because cooperation with the media monitoring partner Baltic Mediamonitoring Group (owner of the media monitoring platform Station) started in the middle of the year and by the IV quarter the environment was adjusted at a satisfactory level. To increase the share of Tallinn University of Technology to 30%, it is necessary to make a substantial progress in the number of media reports and take into account that the ambition of the reference universities regarding the share of voice may also increase over time. In order to achieve the goal, it is important to draw up and enforce the university's strategic communication plan, to increase the share of research communication, to work with innovative media formats and to be engaged in new forms of cooperation with various media groups, as well as to increase the visibility and enhance user-friendliness of the university's e-channels.

Occupational gender integration

The key performance indicator measures integration of gender equality into professional activities, which is also the inverse of the Duncan Segregation Index. The index is calculated using the distribution of academic staff employed at the university as of 31.12 by salary grade and gender. Data are obtained from the human resources management system (NAV).

One of the best-known indicators of gender equality in professional activities is the aggregate pay gap between men and women. The aggregate gender pay gap depends on various factors, including sectoral segregation (horizontal segregation), segregation across the occupational hierarchy (hierarchical segregation), job specificity[1] and the supply and the demand for the job in the labour market. Targeted management of the aggregate gender pay gap is difficult, because it is simultaneously affected by many factors.

The salary scale established at the university is an important instrument in the organisation's career and remuneration policy. Segregation by gender in the salary scale, i.e. relative under-representation or over-representation of men and women in each salary grade has significant implications for both the gender pay gap and equal participation of women and men in working life and professional fulfilment. The segregation index based on a salary scale enables measuring of the difference between relative representations of men and women by different salary grades. Its complementary index (1-segregation index) is the integration index, which reflects gender balance in representations in the salary grading scale. The occupational gender integration (SAI) index is the complementary index of the Duncan Segregation Index (1-Duncan index), with values on a scale of 0-1, where 1 indicates complete gender integration. The SAI index is easy to calculate and apply. The index can be assessed both on an ongoing and a retrospective basis monthly, quarterly, semi-annually or annually, and changes in the trends of the index can be identified. In addition, the index can be calculated by different structural units, occupational groups, age groups or other required sections. The index also allows for decomposition by salary grade, which provides managers with the necessary input to guide staff policy more precisely based on specific salary grades. The operating principle of the SAI index is gender neutral. The index shows the absolute value of gender integration, i.e. regardless of whether the relative gender distribution in the salary scale is in favour of men or women. As the index is based on the salary scale of the organization, it is important that the salary scale is organized and the differences within a salary grade are not too big.

Formula for calculating the SAI index:

$$SAI = 1 - Duncan\ indeks = 1 - 0.5 \sum_{i=1}^{K} \left| \frac{m_i}{M} - \frac{n_i}{N} \right|$$

where i=1,2,…K is the number of grades across which the index is calculated.
m_i - number of men in the salary grade i
n_i - number of women in the salary grade i
M - total number of men across the salary grade K
N - total number of women across the salary grade K

Employee satisfaction index (TRIM)

Employee satisfaction is measured using the TRI*M index method developed by Kantar Emor, which looks at employee engagement as the employee's relations with the employer, focusing on factors that the employer can influence to enhance and retain engagement.   Kantar Emor and its parent company have used the methodology based on five standard questions to survey the engagement of more than 800,000 employees across Europe. The five questions on the basis of which the index is calculated are the employee's general satisfaction with the university, readiness to recommend the university as an employer and the desire to rejoin in the event of termination of employment, perception of colleagues' motivation and assessment of the university's success in fulfilling its goals. There is a strong correlation between the competitiveness of the organisation and motivated staff, incl. satisfaction of the employees, and these are an important prerequisite for fulfilling the goals of the Strategic Plan. The methodology is comparable to the same index of other universities and organisations. The exact mechanism for calculating the index is a trade secret of the survey company. The survey will be conducted among the university staff once in every 2 years; the next survey will be conducted in autumn 2021.

Chapter 3: Time series, summary and planned target levels of the key indicators of the Strategic Plan 2021-2025

The key indicators of the Strategic Plan 2021-2025 are monitored annually alongside with the indicators of the implementation plan simultaneously with the preparation of the annual report; the Rector provides an overview to the Senate and the Council once a year.

	Key indicators of the STRATEGIC PLAN 2021-2025	2015	2016	2017	2018	2019	2020	Baseline at the beginning of 2021	Target level in 2025
TEACHING AND LEARNING	Share of students graduating within the nominal period of study	38%	40%	46%	48%	47%	50%	50%	60%
	Ratio of the average income of the graduates of master's studies to the average salary in Estonia	1.474	1.423	1.571	1.518	1.533	Information will be available in spring 2022	1.53	1.65
	At least 75% of the volume of the master's programmes is taught by academic staff members with a PhD or an equivalent qualification	-	-	-	-	-	46%	46%	100%
	Total annual income from the rendering of education services (million euros)	43.1	48.5	49.7	53.1	53.1	54.4	54.4	70.9
RESEARCH	Annual number of Q1 category articles per an academic staff member with a PhD	-	-	0.36	0.43	0.45	0.63	0.47	0.70
	Number of defended doctoral theses	62	75	62	77	66	55	55	90
	Volume of launched R&D projects per FTE of an academic staff member with a PhD (thousand euros)	-	-	26.5	14.1	45.2	60.2	60.2	72
ENTREPRENEURSHIP	Annual income from R&D contracts and services (million euros)	5.6	5.1	5.4	7.1	10.6	10.9	10.9	13
	Number of established spin-off and start-up companies	7	6	4	4	4	4	4	10
	Number of licence agreements	2	2	2	2	2	3	3	10
	Number of patents/patent applications filed per year	3/12	9/11	12/15	10/11	3/22	10/13	10/13	12/20
GENERAL	Reputation index (TRIM)	86	87	90	90	92	85	85	95
	Share of voice (SOV) on media in the comparison of 3 largest universities (TalTech, the University of Tartu and Tallinn University)	-	-	-	-	-	18%	18%	30%
	Occupational gender integration (SAI)	0.775	0.811	0.827	0.832	0.825	0.827	0.827	0.900
	Employee satisfaction index (TRIM)	-	-	-	53	61	-	61	68
	Climate neutral university 2035	-	-	-	-	-	-	will be defined in 2022	will be defined in 2022