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About KTH

Since its founding in 1827, KTH has grown to become one of Europe’s leading technical and engineering universities, as well as a key centre of intellectual talent and innovation. As Sweden’s largest arranger of technical education and research, KTH attracts students, teachers and researchers from all over the world.

KTH works with industry and society in the pursuit of sustainable solutions to some of humanity’s greatest challenges: climate change, future energy supply, urbanisation and quality of life for the rapidly-growing elderly population.

Education and research at KTH covers a wide area – science and technology of course, but also architecture, industrial economics, urban planning and education, for example. The innovative climate promotes versatile solutions and creates a new generation of engineers, architects and teachers. In the next few years, extra focus will be placed on digitalisation, sustainability, internationalisation and equality.

KTH participates in international research collaborations and a large number of educational exchange or joint programmes with universities and colleges the world over. KTH’s collaboration with strategic partners such as commercial companies, the authorities and organisations gives students and researchers a wide network of contacts to make use of.

KTH’s educational and research activities are distributed across five campus areas in the Stockholm region. KTH’s central campus is in the Stockholm city centre next to Norra Djurgården. KTH and Stockholm University jointly organise education and research in biotechnology and physics at AlbaNova, near Roslagstull, and adjacent to the KTH Campus.

Karolinska Institutet Science Park in Solna is home to the Science for Life Laboratory, which is operated together with Karolinska Institutet, Stockholm University and Uppsala University. Education and research in the field of IT is located at Kista in northern Stockholm, close to IT industry companies and research institutions.

With a focus on medical technology, KTH is a part of Campus Flemingsberg in the southern suburbs of Stockholm. In Södertälje, KTH is expanding education and research in sustainable production. In collaboration with Scania, AstraZeneca and Södertälje Municipality, KTH is an important partner in Södertälje Science Park.

### KTH in figures 2017

**Educational activities**
- Master of Architecture and 15 Master of Science in Engineering programmes
- Master of Science in Engineering combined with Degree in Education
- 8 Bachelor of Science in Engineering programmes
- Bridging Teacher Education Programme
- Master’s programmes (one and two year)
- Bachelor’s programmes and two-year university diplomas
- Further education, technical preparatory programme
- 13,432 full time students, of which 34 per cent are women and 66 per cent men (including fee-paying students)
- 11,186 annual performance equivalents (including fee-paying students)
- 1,767 active research students (at least 50 per cent activity), of which 30 per cent are women and 70 per cent men
- 2,473 new students on the first year of Master of Science in Engineering, Bachelor of Science in Engineering programmes of which 32 per cent are women and 68 per cent men
- 717 admitted to the Technical Preparatory Programme, of which 38 per cent are women and 62 per cent men
- 2,469 new students on one and two-year Master’s programmes, 36 per cent women and 64 per cent men, of whom
  - 1,133 students previously on Master of Science in Engineering studies programmes and
  - 1,205 students studying on a one or two-year Master’s programme at KTH
- 355 newly-admitted students to doctoral studies programmes, of which 28 per cent are women and 72 per cent men
- 88 Master of Architecture, 58 per cent to women and 42 per cent to men
- 1,161 Master of Science in Engineering degrees, 34 per cent to women and 66 per cent to men
- 337 Bachelor of Science in Engineering degrees, 28 per cent to women and 72 per cent to men
- 2,000 Master/Master of Science (one and two-year) degrees, 36 per cent to women and 64 per cent to men
- 307 PhDs, 32 per cent to women and 68 per cent to men
- 71 licentiate degrees, 25 per cent to women and 75 per cent to men

**Research**
- Primary responsibility for five national strategic research areas;
- E-science
- IT and mobile communication
- Transport research
- Production engineering
- Molecular biosciences (Science for Life Laboratory)
- Partner in another five areas
- Lead partner in four programme areas within the European Institute of Innovation and Technology (EIT);
  - EIT InnoEnergy
  - EIT Digital
  - EIT Health
  - EIT Raw Materials
- External financing, income from grants, 1,634 MSEK (excluding transfers):
  - MSEK 316 the Swedish Research Council
  - MSEK 236 EU
  - MSEK 172 Vinnova
  - MSEK 167 Wallenberg Foundations
  - MSEK 394 other government agencies
  - MSEK 349 other external financing including private funds
- Financial situation
  - MSEK 5,076 in total turnover (of which MSEK 527 transfers)
  - Government grants (excluding transfers);
  - MSEK 1,080 First and second level (undergraduate) educational programmes
  - MSEK 1,185 Research and third education cycle
- Employees
  - 4,952 employees, the equivalent of 3,563 full time positions, of which 1,358 are women and 2,205 men of which;
    - 296 professors, 46 women and 250 men (including visiting and adjunct professors)
    - 285 associate professors, 68 women and 217 men
- Floor Space
  - 289,000 m²
Organisation

KTH management and faculty
Up to 31 December 2017, KTH had educational and research activities in ten schools. Since 1 January 2018, a new organisation has been in place comprising five schools. Intensive work was done in 2017 to prepare the new organisation. The description below concerns the old organisation.

Under each of the schools, there are a number of departments, centres of excellence and study programmes. The schools all report directly to the President. Each school is led by a Head of School and a Deputy Head of School and has a Management Group. There is also a Strategic Council for each school, which is an advisory body to the Head of School in certain issues.

The University Board monitors all KTH internal affairs and is responsible for ensuring that its tasks are fulfilled. The board consists of 15 members: the President, eight external members, three faculty members and three student representatives.

The President leads university activities, subject to the University Board. The Deputy President may deputise for the President. There are also Vice Presidents for research, sustainable development, international issues and equality and values. A Vice President for digitalisation was appointed in autumn 2017.

The President’s Strategy Council deals with strategic issues that concern all schools and is made up of the President, Deputy President, Dean of Faculty, Vice Dean of Faculty, University Director, all Heads of Schools, Communications Director and two student representatives. The President’s Management Council consists of the President, Deputy President, all Vice Presidents, Dean of Faculty, Vice Dean of Faculty, University Director and the President of the KTH Student Union.

The Faculty Council represents the entire faculty and has overall responsibility for issues relating to the quality of education, research and collaboration. The Council is also an advisory body to the President. There is a faculty meeting group, the main task of which is to facilitate and reinforce the faculty’s access to information and influence on processes and decisions. There is a faculty meeting group, the main task of which is to facilitate and reinforce the faculty’s access to information and influence on processes and decisions. The Education Committee of the Faculty Council has three main tasks: overall design of the educational offering at the undergraduate, graduate and doctoral levels; preparing KTH’s work on quality development and monitoring education; and the preparation of the development of rules and guidelines for education for the whole of KTH. The Appointments Committee of the Faculty Council has three main tasks: preparation and decisions in promotion cases, preparation and decisions on matters relating to recruitment of teaching staff, and the preparation of KTH’s work on quality development and follow-up with regard to teaching staff appointments. The Faculty Council has a promotions board and recruitment committees.

The Faculty Council also has a Resource Allocation Committee that mainly prepares matters concerning the allocation of the government funding to research and doctoral education.

KTH Schools with operating areas
This overview presents the situation as of 31 December 2017. As of 1 January 2018, the schools BIO, CHE and STH are merged into one school (CBH) and the schools CSC, EES and ICT are merged into one school (EECS). At the same time, the ECE school is divided up between ITM and the university administration.

School of Architecture and the Built Environment (ABE)
- Architecture
- Civil and Architectural Engineering
- Real Estate and Construction Management
- Philosophy and History
- Sustainable Development, Environmental Science and Engineering
- Urban Planning and Development
- Transport Science

School of Biotechnology (BIO)
- Genetic Technology
- Glycoscience
- Industrial Biotechnology
- Protein Technology
- Proteomics and Nanobiotechnology
- Theoretical Chemistry and Biology

School of Computer Science and Communication (CSC)
- Computational Science and Technology
- Media Technology and Interaction Design
- Robotics, Perception and Learning
- Speech, Music and Hearing
- Theoretical Computer Science

School of Electrical Engineering (EES)
- Electromagnetic Engineering
- Electric Power and Energy
- Fusion Plasma Physics
- Communication Network
- Communication Theory
- Micro and Nanosystems
- Automatic Control
- Space and Plasma Physics
- Signal Processing

School of Industrial Engineering and Management (ITM)
- Energy Technology
- Sustainable Production Development
- Industrial Economics and Management
- Production Engineering
- Machine Design
- Materials Science and Engineering

School of Information and Communication Technology (ICT)
- Electronics
- Communications Systems
- Software Engineering and Computer Systems

School of Chemical Science and Engineering (CHE)
- Fibre and Polymer Technology
- Chemistry
- Chemical Engineering

School of Technology and Health (STH)
- Health Systems Engineering
- Medical Engineering
- Environmental Physiology

School of Engineering Science (SCI)
- Aeronautical and Vehicle Engineering
- Physics
- Solid Mechanics
- Mathematics
- Mechanics
- Applied Physics

School of Education and Communication in Engineering Science (BCE)
- Library
- Learning
The President’s foreword

Scanning the past year by delving into KTH’s activities to varying degrees and in various ways offers clues, clear facts and figures and crucial events that form the story of KTH in 2017.

However, an annual report not only tells about what happened in terms of KTH’s development and growth. It also lays the foundation for the upcoming year in particular and for the university’s future in general. The annual report is a comprehensive and thorough source of information ranging from the number of applicants to our programmes and how our research works to our collaboration and development of innovation.

Choosing what in particular will be mentioned in a foreword is always difficult. A leading KTH – as stated in the new development plan to apply for the next six years – is more than a smart title. Rather, it reflects both ambition and the fact that nearly 5,000 employees, including teachers, researchers and administrators, and around 14,500 students at various levels do their best every day – like cogs in a gigantic machinery of knowledge – at our five campuses.

The extensive and successful stake on KTH Södertälje, where both new educational programmes and research have been built up in close cooperation with the surrounding business community, is an important element of our account of the year. With a focus on sustainable production, the activities in Södertälje prepare our students there, who currently number 600, but in the long term will number 1,200, for the labour market of today and tomorrow. Relevant research and innovative collaboration are other important ingredients in the endeavour.

The continued high number of applicants per place for our programmes at every level – not least at the doctoral level – is naturally good as is the fact that the number of international students is steadily increasing. Even if there is an even greater need, we also succeed in matching with housing through the new student accommodations completed for occupancy during the year on our campus on Valhallavägen. The main thing is of course that there is adequate housing for those who want to study or conduct research at KTH, but it also creates a vibrant campus with life and movement around the clock.

It is also good that student completion has increased and that more students are graduating with degrees in several of our programmes.

Another important effort, among many, is the one where recently arrived immigrants quickly receive training or additional training in software development, with good results where virtually all of them found work in the IT sector after completing training. It exudes quality.

Another aspect of quality is gender equality. Of the total number of beginners at KTH, 34 per cent were women and 66 per cent were men according to figures in this annual report. Through a number of different initiatives, the skew is decreasing – albeit slowly – and competency is coming first.

Something that has also been a common theme in the operations is the systematic and long-term quality work around education and research, as well as collaboration. Extensive focus was on developing our own quality assurance system for education at every level. It speaks for itself that KTH was one of few universities to receive good marks in the thematic evaluation of sustainable development in education done by the Higher Education Authority. This was the result of numerous extensive efforts.

The past year was also marked by the construction of a new school organisation, where KTH now with five schools will become even more uniform, effective and excellent.

I will let our new development plan have the final word in the account of KTH in 2017:

“Everyone connected to KTH can participate in striving towards the leading, integrated, visible, open, increasingly digitalised, more sustainable, more international and more equal KTH. The creation of social benefits and a belief in the future are fundamental to a KTH in which research, education and collaboration are based on these principles.”

Sigbritt Karlsson, President
Education

First- and second-cycle education

Recruitment of students to KTH programmes, starting at first cycle

Technical education should be presented as a natural choice for young people who want to contribute to sustainable societal development. KTH has a communication platform that sets out what KTH should communicate to potential students. It also forms the basis of the activities and measures planned or begun to achieve a more balanced gender distribution, reduce social imbalance in recruitment and stimulate ethnic diversity. KTH also works long term with young people in compulsory school as a target group.

Recruitment work prioritises the personal encounter between representatives of KTH and potential students. This is mainly done by around 45 “student ambassadors”, who are KTH’s front-line representatives among upper secondary pupils. These student ambassadors represent most of KTH’s degree programmes and campuses. The student ambassadors reflect the diversity at KTH in terms of gender, geographic origins, ethnicity and social background. They are chosen with great care, the greatest priority being their ability to inspire young people. All student ambassadors receive extensive training in communicating with young people, presentation techniques, messages for student recruitment and information about the target group, as well as individual coaching.

In 2017, KTH’s student ambassadors held 140 student recruitment meetings with upper-secondary classes in the form of study visits to KTH and visits to upper-secondary schools. The activities where KTH meets the largest number of students in the target group are at KTH’s stand at SACO’s education fair in Stockholm and during visits to upper-secondary schools.

To reach more upper secondary students in KTH’s direct target group, KTH identifies around 100 prioritised upper secondary schools every year. The prioritisation is based on average marks, college entry, geographical location, number of pupils, importance given to technical education and previous experience and collaboration. Both visits by student ambassadors to upper secondary schools and visits to KTH are offered.

The KTH website, programme catalogue and personal meetings, such as visits to upper-secondary schools, are the most important channels for reaching the target group with information prior to the selection of a programme. To create opportunities to make KTH accessible to more people, regardless of where they live, the KTH website and other digital efforts, like social media and student blogs, are very important.

In 2017, extensive work was done in order for prospective students to be able to compare KTH’s various programmes with each other. This work is conducted together with KTH’s Director of First and Second Cycle Education and is a direct result of a systematic evaluation of the KTH website.

Every year, KTH organises an open house for the purpose of informing about KTH’s educational programmes on site, in the university environment. The 2017 event attracted some 1,400 visitors, and according to a visitor survey, almost all of them said that they received answers to their questions.

Upper secondary students also had the opportunity to accompany a student during a normal day’s studies. During the first few months of the spring semester, about 390 3rd-year upper secondary students visited KTH. Of them, around 50 per cent were women. During the 2016/2017 recruitment year, KTH also met potential students at the SACO educational fairs in Gothenburg and Stockholm, which attracted 30,000 visitors between them. According to a target group survey done on site at the fair in Stockholm, among the upper secondary students qualified for studies at KTH who visited KTH’s stand during the day, around 70 per cent became interested in learning more about KTH and KTH’s programmes.

Around half of KTH’s direct target group, 3rd-year upper secondary students in science and technical programmes, are women. Women also account for around half of the participants in KTH’s student recruitment activities. According to KTH’s development plan for 2013–2017, the percentage of women is also to increase among new students in the engineering programmes. At present, the greatest challenge in terms of recruitment is that certain specialisations and educational environments still have a distinct imbalance. The work of recruiting women has therefore to some extent been redirected towards the subject areas and programmes with the largest imbalance.

In the past three years, KTH has conducted an initiative under the name GIANTS to increase the number of women students in programmes in computer engineering, IT and electrical engineering. In 2017, an event was held with 200 women participants to provide inspiration and in-depth knowledge in the subject area. Around 50 of the participants applied to one or more of the programmes concerned. In 2015–2017, an event called Teklafestival was arranged to incite interest in engineering among younger women. In 2017, around 400 participants ages 11–15 visited the event. KTH also works to increase knowledge and interest in technology, science and mathematics among children and young people. The hub of this work is Vetenskapsen Hus, the House of Science, which is run by KTH and Stockholm University with the City of Stockholm as a long-term partner. School pupils, from preschool to upper secondary, visit the premises at AlbaNova or in the Bergius Botanic Gardens to perform experiments or activities involving biology, physics, chemistry, mathematics or technology. Further teacher training in these subjects is also offered. The House of Science also hosts a number of other initiatives for the purpose of increasing knowledge and interest in technology, science and mathematics. These include for example Technology Week, Researchers’ Night, First Lego League and Maths Coach on
the internet. Nearly 80,000 pupils and teachers a year visit the House of Science.

**Recruitment of students to second-cycle education**

*KTH* is active in an international market and has to compete with other excellent universities for the best researchers and students. According to *KTH*’s development plan for 2013–2017, the target for fee-paying students registered for the autumn semester 2017 is 750. The target has thus been set of achieving in the long term the same number of non-European students as before the introduction of fees.

Since 2011, *KTH* has prioritised the regions of China, India, South-East Asia and Brazil for targeted efforts. For each region, there is an academic and an administrative coordinator tasked with increasing visibility of *KTH*, securing student exchanges with the best universities, recruiting qualified fee-paying students and creating conditions for relevant research collaboration.

**Focus during the year**

*KTH* assigned extensive importance to engaging foreign master’s students as international student ambassadors. These ambassadors have the task of serving as contacts for potential master’s students, representing *KTH* mainly in the scope of various kinds of digital communication and being hosts in campus visits. During the year, more student ambassadors were recruited than before, which led to 46 of *KTH*’s roughly 60 master’s programmes now having an international student ambassador.

Focus during the year was on financing possibilities for fee-paying students, such as through agreements with foreign scholarship organisations and other financiers. An agreement was signed with Conacyt in Mexico and ICETEX in Colombia. *KTH* already has cooperation agreements with IPDP in Indonesia, Colfuturo in Colombia and Conicyt in Chile. Dialogue is being conducted with more organisations for the same purpose. This work has also entailed developing internal processes to manage the scholarships.

Continuous work has been done to develop digital communication in social media and on the web. Among other things, *KTH* has channels targeting international students on Facebook and Instagram to communicate *KTH*’s offering and insight into the daily lives of current students. In addition, special focus has been placed on Chinese channels to overcome communication obstacles in the country. *KTH* has therefore established a Chinese website with information on educational programmes, as well as a presence in Chinese social media, such as Weibo, RenRen and WeChat. In addition to this, the student ambassadors answer questions from interested students every day and a number of international students also share their experiences and perceptions through blogs. *KTH* has also participated in a number of webinars to cost-effectively communicate with and offer support to potential students worldwide.

During the year, *KTH* procured and implemented a Customer Relationship Management (CRM) system to manage, follow-up and evaluate communication with prospective students in a more efficient and targeted way.

Activities for creating visibility and recruiting applicants

In 2017, *KTH* participated in recruitment fairs in India, Indonesia, Thailand, Vietnam, the Philippines, Singapore, Brazil, Colombia, Mexico, Chile and Peru. At the fairs, *KTH* gathers contact information for interested students for further communication and evaluation. In October, *KTH* also participated in a recruitment event in Riyadh, Saudi Arabia, in cooperation with the Swedish embassy, Karolinska Institutet, Uppsala University and Lund University. It took place in connection with the visit to the country by the Swedish Minister for Trade and targeted invited students from selected universities.

In China, *KTH* mainly works within the framework of the recruitment agreements reached with some ten selected universities. Regionally responsible coordinators visit each of the universities a few times in the autumn to present *KTH* and interview applicants. The recruitment agreements mean that students can be admitted to the second cycle after three years’ study at a normally four-year education at the bachelor’s level in China. There is also such an agreement with a university in India.

For the fifth consecutive year, the competition *KTH* Master’s Challenge was organised with the aim of attracting qualified students from India and Indonesia to a total of six selected master’s programmes. The competition was organised in collaboration with Saab, Bombardier, Scania and Formulate IP. The winnings consisted of scholarships covering the tuition fee at *KTH* and, for three of the programmes, stipends for living expenses. In some cases, placement or a degree project position was also included in one of the companies. Evaluations have shown that the competition provides good visibility and results in a large number of qualified students.

During the year, *KTH* signed cooperation agreements with a Turkish recruiting agent, SwedenEdu. *KTH* already works with agents in Vietnam, Thailand and Indonesia. *KTH* has chosen to use recruiting agents in a few markets where there is a custom among the students to turn to agents, making it a complement to other efforts in the area. All agents work based on commission with compensation only for the fee-paying students they recruit. In the autumn semester of 2017, 11 of the registered beginners were recruited through these agents.

**Communication with applicants and admitted students**

The recruitment efforts are under way until the students are registered at *KTH* and it is therefore prioritised to inform and assist applicants and admitted students throughout the whole process. The purpose of the activities is to strengthen those admitted in their choice of *KTH* and answer questions
of both an academic and practical nature prior to the beginning of studies and the move to Sweden. During the year, a digital welcome package was developed for admitted international students. With the help of the international student ambassadors, KTH also phoned all admitted students in connection with the admission letters being sent out. Moreover, KTH arranged around 20 preparatory seminars in eight countries where there were a large number of admitted students. The seminars were carried out in several cases in cooperation with other Swedish universities and embassies or consulates, and were combined with other commitments in the area, such as university visits or meetings with scholarship organisations.

Student fee financed activities
The student fee financed activities mainly affect the education planning. It is difficult to foresee the number of fee-paying students and what programmes they are interested in. Discussions concerning the dimensioning of the programmes, especially in the second cycle, must therefore continuously be conducted. As KTH’s operations for fee-paying students increase in volume, so too does the work on recruitment and reception activities at both the schools and centrally at KTH.

In collaboration with the student union, KTH has organised an arrival and introduction service for all international students prior to the spring and autumn semester. During special reception days, the students were met at Arlanda and taken to the KTH Entrance where they could sign a contract for housing and receive service and information. The introduction also included information meetings, a welcoming ceremony on Stockholm City Hall and social activities arranged by the student union.

In addition to the basic arrival and introduction service, the students who paid tuition fees are offered a housing guarantee, cost-free primary care, expanded insurance coverage, a preparatory course in English, an introduction course in the Swedish language and culture and membership in an exercise facility. In 2017, KTH endeavoured to give new students more personal and individualised service than before. The staff at the student service department met more than 1,600 students to guide them accurately in the contact with authorities and institutions in Swedish society.

KTH is continuing with recruitment efforts and to constantly improve and streamline administration and service to the fee-paying students. This also had a positive effect on the other student administration procedures. Activities around fee-paying students have shown an accumulated deficit since the beginning. However the revenues are steadily increasing at the same time that efficiency efforts are under way to reduce costs. The outcome for 2017 is positive, which means that the activities at the end of 2017 are reporting an accumulated surplus of SEK 9 million.

The following tuition fee levels apply for programmes begun during the 2017/2018 academic year. The fee for first-cycle programmes and years 1–3 in the five-year engineering programmes and the subject teacher programmes is SEK 122 thousand per academic year. For the architecture programme, the fee is SEK 205 thousand per academic year for years 1–3 and first-cycle courses in the School of Architecture. For years 4–5 and for second-cycle courses, the fee is SEK 260 thousand per academic year. For other second-cycle programmes and courses, the tuition fee is SEK 155 thousand per academic year, except within programmes provided in cooperation with other universities, where different fee levels apply.

Demand for KTH programmes
Demand for KTH programmes that lead to professional qualification continues to be high and has once again increased compared with previous years. The number of first-choice applications for these programmes in 2017 was 5,793 (5,725) in total. The number of planned places was 2,195 (2,235). In its development plan for 2013-2017, KTH has the goal for 2017 of having at least 1,100 first-choice applicants to the engineering bachelor degree programmes and 4,200 to the engineering master degree programmes. In 2017, there were 1,022 first-choice applicants to these bachelor’s programmes and 3,765 to these master’s programmes.

In the autumn semester of 2014, KTH began its first English language first-cycle programme, the Bachelor’s Programme in Information and Communication Technology. In 2017, the programme had 782 (546) first-choice applicants, of which 231 (253) were in the national admissions round and 551 (293) in the admissions round for English language programmes. This indicates extensive interest in English language programmes even in the first cycle.

The number of applications at the master’s degree level also increased in 2016. In connection with the introduction of tuition fees in 2011, the number of applicants dropped drastically, but since 2011 have increased from around 5,000 to more than 17,000 applicants in 2017.

Of 17,095 (12,967) web registrations for the second-cycle English speaking programmes before the autumn 2017 semester, 9,757 (9,870) were subject to fees and of these 5,574 (4,251) paid the registration fees. There were 130 (114) first-choice applicants for the (three) Swedish speaking one-year master’s programmes.

KTH coordinates admissions to the umbrella programme of eight different tracks, which is provided by EIT Digital within the framework of the European Institute of Innovation and Technology (EIT). Some enrolled students begin their studies at a seat of learning other than KTH and some do not study at KTH at all, only at partner universities. The EIT programme received 1,311 (1,197) applications.

The qualifying Technical Preparatory Year and Technical Preparatory Semester had a total of 1,861 (2,155) first-choice applicants in 2017. The programmes begin in both the spring
and autumn semesters. The technical preparatory year is a one-year qualifying programme for students who have not achieved full qualification for KTH’s programmes during their upper secondary studies. The preparatory provides supplemental education at the upper-secondary level in mathematics, physics and chemistry. It is also possible to only apply for the second semester of the preparatory year, which is particularly well-suited for those who followed the upper-secondary technical programme. Passing marks in the preparatory year or preparatory semester guarantees a place at one of KTH’s engineering bachelor’s or 5-year master’s programmes.

With the aim of finding new markets, broadening recruitment to the master’s programmes and contributing to an international campus, Study Abroad Programmes have been implemented. They are targeted at fee-paying students who are interested in studying at KTH for one semester without it leading to a degree. In 2017, targeted agreements were signed with several international universities where specified courses were offered. The outcome is positive and this activity will be expanded.

Alternative selection, mathematics and physics test
For autumn 2017 admissions, KTH used mathematics and physics tests as an alternative selection to the degree programmes in Engineering Physics, Electrical Engineering and Vehicle Engineering. The mathematics and physics test is designed and administered by Chalmers and has been used as a selection model for admissions to degree programmes in engineering since 2007 at Chalmers and since 2011 at KTH.

Up to a third of the places in these programmes can be given to applicants with approved results in the mathematics and physics tests. A minimum result must be achieved in the test in order to gain acceptance. In the autumn semester of 2017, 43 applicants were accepted into engineering physics, six into electrical engineering and one into vehicle engineering through alternative selection.

Assessment of prior learning
In 2017, KTH continued work to develop the handling of prior learning. The issue is regularly addressed and knowledge in the area has been deepened. At present, KTH participates in a national cooperation on the work on assessing prior learning. This work is led by the Swedish Council for Higher Education (UHR) and aims to develop and create lasting structures and cooperation on the assessment of prior learning. In connection with the national effort, KTH participates in conferences and seminars arranged by UHR that are intended to increase expertise in the handling of prior learning.

KTH has applied for and was granted funding for a pilot project on validation within engineering programmes in Sweden. The project is led by KTH and another three universities also participate: Chalmers University of Technology, Linköping University and the University of Borås.

Information on the possibility for applicants/prospective applicants to have their prior learning assessed for qualification for higher studies has been clarified and made more available on the KTH website. KTH also offers preliminary notification of an assessment of prior learning for admission and guidance in completing an application for prior learning for credit transfer.

Beginners
In 2017, a total of 2,473 (2,606) beginners started year 1 studies in KTH’s programmes that lead to professional degrees, of which 107 (104) were in the Master of Architecture programme, 1,730 (1,845) in Master of Science in Engineering programmes and 636 (657) in Bachelor of Science in Engineering programmes. See Figure 2 for further details.

The two final years of a Master of Science in Engineering programme are registered as a master’s programme, meaning that Master of Science in Engineering students are registered as new students on a master’s programme when they start the fourth year of their engineering programme. Master’s programmes had 2,338 (2,320) beginners. Of them, there were 1,205 (1,156) new students who started with KTH’s master’s programme while 1,133 (1,164) were already students in the 5-year Master of Science in Engineering programme. The one-year master’s programmes had 131 (138) beginners.

Of the total number of beginners in 2017, 34 per cent were women and 66 per cent were men. In 2017, KTH has the target of women accounting for at least 37 per cent of the beginners in the engineering master’s programmes and 27 per cent in the engineering bachelor’s programmes. Of the beginners in the engineering master’s programmes, 32 (35) per cent were women and 68 (65) per cent were men. Of the beginners in the engineering bachelor’s programmes in 2017, 26 (27) per cent were women and 74 (73) per cent were men. The distri-
## Figure 2

### Total number of new students 2014–2017

<table>
<thead>
<tr>
<th>Master of Architecture, Degree Programme 300 HE credits</th>
<th>2017 Total Proportion (%) of women/men</th>
<th>2016 Total Proportion (%) of women/men</th>
<th>2015 Total Proportion (%) of women/men</th>
<th>2014 Total Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science in Engineering Degree Programme 300 HE credits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biotechnology</td>
<td>68/32</td>
<td>60/40</td>
<td>58/42</td>
<td>56/44</td>
</tr>
<tr>
<td>Engineering and Education</td>
<td>60/43</td>
<td>57/44</td>
<td>57/43</td>
<td>51/49</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>166/20</td>
<td>187/21</td>
<td>206/15</td>
<td>190/16</td>
</tr>
<tr>
<td>Design and Product Realisation</td>
<td>113/48</td>
<td>117/51</td>
<td>115/52</td>
<td>120/51</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>83/18</td>
<td>77/14</td>
<td>80/11</td>
<td>82/13</td>
</tr>
<tr>
<td>Energy and Environment</td>
<td>82/49</td>
<td>84/52</td>
<td>82/56</td>
<td>84/55</td>
</tr>
<tr>
<td>Vehicle Engineering</td>
<td>92/13</td>
<td>112/21</td>
<td>121/18</td>
<td>110/9</td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>151/25</td>
<td>160/36</td>
<td>159/29</td>
<td>170/33</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>74/22</td>
<td>80/26</td>
<td>78/22</td>
<td>70/24</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>190/19</td>
<td>201/27</td>
<td>165/30</td>
<td>157/22</td>
</tr>
<tr>
<td>Materials Design and Engineering</td>
<td>45/38</td>
<td>48/33</td>
<td>47/43</td>
<td>50/50</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>55/44</td>
<td>56/55</td>
<td>59/58</td>
<td>57/43</td>
</tr>
<tr>
<td>Media Technology</td>
<td>69/49</td>
<td>69/54</td>
<td>70/47</td>
<td>70/30</td>
</tr>
<tr>
<td>Civil Engineering and Urban Management</td>
<td>164/41</td>
<td>178/44</td>
<td>180/53</td>
<td>173/49</td>
</tr>
<tr>
<td>Engineering Physics</td>
<td>120/18</td>
<td>134/16</td>
<td>137/20</td>
<td>130/16</td>
</tr>
<tr>
<td>Engineering Chemistry</td>
<td>69/64</td>
<td>69/55</td>
<td>71/46</td>
<td>80/45</td>
</tr>
<tr>
<td>Open entrance</td>
<td>129/28</td>
<td>144/33</td>
<td>141/28</td>
<td>139/37</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>1,730/32/68</td>
<td>1,845/35/65</td>
<td>1,838/34/66</td>
<td>1,809/33/67</td>
</tr>
</tbody>
</table>

### Bachelor of Science in Engineering, Degree programme 180 HE credits

| Constructional Engineering and Design                  | 153/35/65                              | 178/35/65                              | 174/29/71                              | 173/42/58                              |
| Computer Engineering                                   | 136/18/82                              | 138/15/85                              | 142/15/85                              | 135/13/87                              |
| Electronics and Computer Engineering                   | 33/9/91                                | 41/12/88                              | 34/6/94                                | 49/4/96                                |
| Electrical Engineering                                 | 43/7/93                                | 44/7/93                                | 47/11/89                               | 45/7/93                                |
| Industrial Technology and Production Maintenance       | 26/23/77                               | -                                      | -                                      | -                                      |
| Chemical Engineering                                   | 58/52/48                               | 53/49/51                               | 47/60/40                               | 48/56/44                               |
| Mechanical Engineering                                 | 95/16/84                               | 113/19/81                              | 113/20/80                              | 129/11/89                              |
| Medical Engineering                                    | 39/38/62                               | 41/39/61                               | 35/46/54                               | 54/31/69                               |
| Engineering and Economics                              | 53/28/72                               | 49/43/57                               | 85/27/73                               | 82/32/68                               |
| **Sub-total**                                           | 636/26/74                              | 657/27/73                              | 677/25/75                              | 715/25/75                              |

### Subject Teacher Education in Technology, Secondary Education, 270 HE credits

| Bridging Teacher Education                            | -                                      | -                                      | 5                                      | 60/40                                  |
| Masters programmes                                    | 66/45/55                               | 41/29/71                               | -                                      | -                                      |

### Masters programmes

| Masters programmes 120 HE credits                     | 2,338/34/66                            | 2,320/32/68                            | 2,106/33/67                            | 1,920/33/67                            |
| of which within Master of Science in Engineering programmes | 1,133/35/65                            | 1,164/32/68                            | 1,062/32/68                            | 1,043/33/67                            |
| Masters programmes 60 HE credits                      | 131/66/34                              | 138/49/51                              | 149/56/44                              | 119/43/57                              |
| **Sub-total**                                         | 2,469/36/64                            | 2,458/33/67                            | 2,255/34/66                            | 2,039/33/67                            |

### Bachelors programmes 180 HE credits

| University Diploma programmes 120 HE credits          | 130/29/71                              | 114/35/65                              | 115/35/65                              | 139/36/64                              |
| Technical Preparatory Year, Technical Preparatory Semester 60/30 HE credits | 42/31/69                              | 43/28/72                              | 40/12/88                              | 40/43/57                              |
| **Total**                                              | 5,897/34/66                            | 5,999/34/66                            | 5,848/34/66                            | 5,757/33/67                            |

Source: Ladok
bution between men and women differs sharply, however, between KTH’s various programmes. See Figure 2 for the gender distribution within programme types and programmes, and Figure 1 for the development in the past 10 years.

The median age for beginners in the Master of Architecture and Master of Science in Engineering programmes was 21 for women and 20 for men in 2017. For beginners in the Bachelor of Science in Engineering programmes, the median age was 22 for both men and women. The median age for both men and women in the one- and two-year master’s programmes was 24. For the technical preparatory programme, the median age was 21 for both men and women. These are essentially the same levels as in 2016.

In addition to admission of beginners in year 1, there is a possibility to begin a later part of an educational programme. 161 (181) new students began the later parts of a Master of Science in Engineering programme and 170 (149) began the later parts of a one- or two-year master’s programme.

KTH’s goal is that 750 fee-paying students will be registered in the autumn semester 2017. In the autumn semester 2017, 644 (523) new fee-paying students were registered at KTH, of which 213 (153) were women and 432 (370) were men, which means that KTH continues to see a positive development since the tuition fees were introduced.

Of the fee-paying students, 74 (88) had been awarded scholarships financed by Swedish or KTH-affiliated scholarship programmes: 40 (38) Swedish Council for Higher Education scholarships, 1 (2) financed by ABB, 3 (5) financed by Ax:son Johnson and 30 (43) through the Swedish Institute (81).

Of the remaining 570 (435) students, 83 (84) and 71 (42), respectively, came via the EU knowledge and innovation groups EIT Digital and EIT InnoEnergy.

KTH has the goal that the number of externally recruited beginners from the EU/EEA/Switzerland will be 850 in 2017. In 2017, 781 (824) externally recruited programme beginners from the EU/EEA/Switzerland, including Sweden, began second-cycle studies, of which 302 (393) women and 479 (531) men.

In 2017, 717 (737) students began the technical preparatory programmes. Of these beginners, 38 (36) per cent were women and 62 (64) per cent were men.

Of those who began in the preparatory programme in autumn 2016 or spring 2017, 38 (43) per cent or a total of 269 (340) students (29 per cent women and 71 per cent men), continued on to a bachelor’s programme or 5-year master’s programme at KTH in 2017. The majority of those who continue their studies at KTH did so in the 5-year master’s programmes.

Preparatory courses between upper secondary school and university
Again in 2017, Internet-based preparatory courses were offered to applicants to science and technology programmes. The courses are intended to support beginners and ease the transition from upper secondary level to university. KTH works with several other universities and colleges in the preparatory courses in mathematics. The students are registered at and examined by the seat of learning to which they apply. The courses in mathematics had 1,098 (647) participants.

In 2017, KTH also offered preparatory courses in physics, computer engineering, urban planning and architecture. The preparatory courses had a total of 3,056 (3,220) participants.

International mobility
KTH actively strives for the students to place a part of their education abroad to a greater extent. The goal is that 700 students will study at least one semester abroad in the scope of their education. In 2017, a total of 667 (654) students began studies abroad, which is a stable level; see Figure 3. Of the students studying abroad, 51 (50) per cent studied at a university outside the EU/EEA/Switzerland. The most common countries for foreign studies were Singapore, France, the USA, Australia, Switzerland and China.

The work of reviewing the administrative processes for inbound and outbound students has continued and, in connection with this, the system support Mobility Online has been gradually developed. The system support also ensures that documentation is gathered and available.

As a part of the work to increase interest in and knowledge of exchange studies, KTH Global was arranged for the six

Figure 3
Student exchange 2014–2017
Number of students who began student exchange per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>2015</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>2016</td>
<td>31%</td>
<td>69%</td>
</tr>
<tr>
<td>2017</td>
<td>35%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Source: Ladok
consecutive year. The even involves both the university administration and KTH’s schools, which jointly work to inspire and inform the students over three days. During the year, a number of other activities were conducted with the aim of providing information about the possibilities of exchange studies, online and with direct meetings.

Interest in studying as an exchange student at KTH remained high. During the year, 937 (1002) exchange students began studies at KTH. Within Europe, most students came from universities in Germany, France, Switzerland and Spain. Of all inbound exchange students, 40 (40) per cent came from countries outside the EU/EEA/Switzerland, most of whom were from Singapore, China and the USA.

In addition to the exchange students, KTH has a relatively large group of incoming double degree students in specific collaboration agreements with universities in Europe and Japan. These students study mainly at the second-cycle level for one and a half to two years and then take a Master of Science in Engineering degree from KTH and an equivalent degree from their home university. During the year, a double degree agreement was also signed with Monterey Tech in Mexico. During the year, 153 (151) students began double degree studies at KTH. Interest among KTH’s students for double degree studies is weak; however; in 2017, only one student began double degree studies abroad.

Interest in other kinds of international experience than pure exchange studies continues to be extensive. During the year, 55 (47) KTH students began Erasmus internships at a company or organisation in Europe, most of which were at companies. Many of those who go are international master’s students. The most popular countries are Germany and the Netherlands. There continues to be extensive interest among KTH’s students in the Sida-financed scholarship programme Minor Field Studies (MFS). In 2017, KTH was awarded 25 scholarships for the Swedish Council for Higher Education (UHR) in the programme and 55 applications were received, of which 25 were granted, compared with 20 the previous year. The destinations most scholarship holders travelled to were Tanzania and Mozambique.

**E-learning**

One goal in the KTH development plan for 2013–2017 was that e-learning would be a natural part of the KTH programmes. There is rapid development in the field, which demands that KTH works to evaluate methods and technical support for education in accordance with the prepared vision for e-learning. KTH’s development plan for the period identifies in particular the link between educational development work and Internet-based learning through a clear connection between educational methods and technical support.

Global competition for the best students means that courses, or parts of courses, must be made available on the Internet. This in turn requires knowledge of, and the development of, adapted educational methods. Many teachers
have been active in e-learning for a number of years and they are continuing with the implementation in the educational programmes. The primary emphasis must be on increasing the quality of the programmes, and digital resources must be beneficial and easy to use.

KTH is also investing in infrastructure to support the development of e-learning. In 2015, KTH established an administration unit to organise support for e-learning. In 2016, a major effort was made on a new learning platform for the entire university, the Learning Management System (LMS). The roll-out project was completed in 2017. As a part of the change work, KTH also closed some functionality on the course web in order to have an entrance for all courses. The new LMS platform makes it possible to connect various educational supports in pace with development. In the next few years, the content of the LMS platform will be developed into the support that KTH needs. In 2017, 1,850 courses used the new LMS platform.

As a part of the e-learning initiative, KTH offered four open online courses, so-called MOOCs, in 2017. Two of the courses were newly developed, High Performance Finite Element Modelling, part 1 and Reliable Distributed Algorithms, part 2 and another two courses were offered for the second time, Human Spaceflight and Reliable Distributed Algorithms, part 1. Within the scope of the MOOC project, a learning studio was also built to promote teacher development of moving pictures as a part of the teaching material, such as films that can be used in flipped classroom teaching. As a part of lifelong learning, KTH has the goal of offering a total of 15 MOOCs in 2018, which includes two or three so-called professional programmes that are directed at those who are professionally active.

Integration efforts

The course called Swedish for Engineers in Stockholm County (Sfinx) started in project form in 2008 and since 2011 has been a coordinated programme included in KTH’s ordinary activities. The objective is to ease the entry into the labour market for engineers who have immigrated to Sweden.

Sfinx is a unique joint venture between KTH, the Municipality of Järfalla, the City of Stockholm, the County Administrative Board of Stockholm and the Swedish Association of Graduate Engineers. For 18 months, engineers study Swedish from the immigrant course level through to upper secondary level, as well as English. They also learn about Swedish industry and the Swedish labour market. The students make observation visits or gain credits in their field of engineering at KTH in parallel with the opportunity to participate in a mentorship programme organised by the Swedish Association of Graduate Engineers.

Approximately 130–140 students participate in Sfinx each year and more than 850 students in total have participated in the programme. Like before, the students largely observed courses in the first and second cycle. Reporting was in the form of written accounts integrated into the Swedish course, and contributed to students’ Swedish grades.

A tendency that continued since 2016 is that industry has begun to contact Sfinx to recruit people with the relevant expertise. One explanation for this may be that Sfinx has now established itself as a concept in the time that the programme has been in existence.

KTH received grants from the Marianne and Marcus Wallenberg Foundation to conduct an educational programme where recently arrived immigrants are quickly trained in the project Software Development Academy.

The pilot round was implemented with excellent results. In the educational project, recently arrived immigrants receive training with the help of new teaching methods and new technology. In parallel with the training, the participants are matched with the labour market. The objective is to further educate recent arrivals who come from countries outside the EU in order for them to quickly find employment in the Swedish IT sector.

The results after the pilot round are that almost all of those who attended the training are employed in the IT sector. A second round of the course was finished in December. The Wallenberg Foundation announced further support for the upcoming year and KTH is prepared to hold more course rounds with more participants.

Bridging programme

KTH has planned and established bridging programmes for architects and engineers during 2017. The objective is that anyone who has completed a foreign programme in architecture or engineering will receive supplementary knowledge that is needed to practice the profession in Sweden. The programmes do not lead to a degree.

The programmes comprise 120 credits and contain both professional preparatory courses, as well as law, civics, communication, sustainable development, entrepreneurship and leadership, and subject-specific advanced and preparatory courses. For the subject-specific courses, a study plan is prepared that is formulated considering existing expertise, personal interests, the labour market’s specific needs for competence in the professional or work area and interviews with the students.

During the autumn, the programmes, which begin in January 2018, were accepting applications. KTH has capacity to accept up to a total of 50 students for the first round of training. There were 163 and 131 first choice applicants to both of KTH’s programmes. However, only 24 applicants were admitted, nine for the programme for architects and 15 for the programme for engineers. At the beginning of the studies in mid-January 2018, six new students, four women and two men, and ten new students, six women and four men, were
registered. The next round of admissions is planned for autumn 2018 and the preliminary assessment is then to be able to accept up to 60 students. The recruitment efforts will be evaluated with the help of the students as soon as they are there. The programme’s implementation and content will be followed up continuously.

Performance

The number of state-funded full-time equivalents (FTEs) and annual performance equivalents in first- and second-cycle education in 2017 amounted to a total of 12,476 (12,349) and 10,461 (10,420), respectively. A certain number of examinations for the autumn term are always late in December. For the outcome in 2017, this means that 298 annual performance equivalents that were registered in January 2017 relate to examinations that took place in December 2016.

Of the total number of FTEs, 92 per cent were connected with the science and technology educational areas. KTH can receive funds for a maximum of 123 FTEs and annual performance equivalents, respectively, in the subject area of design. However, the design area had 335 FTEs and 319 annual performance equivalents in 2017. The FTEs and annual performance equivalents that exceed 123 are deducted from in the technology education area.

The performance rate for KTH’s first- and second-cycle studies is 84 (85) per cent calculated as the number of annual performance equivalents in relation to the number of FTEs.

The percentage of women among the FTEs is 34 per cent and the percentage of men is 66 per cent. This is the same level as in the recent years. Within the Master of Science in Engineering programme, the percentage of women was 33 per cent and the percentage of men was 67 per cent while the architecture programme has a reverse distribution with 61 per cent women and 39 per cent men. In the engineering bachelor’s programmes, the percentage of women is 26 per cent and the percentage of men is 74 per cent. The master’s programme has 33 per cent women and 67 per cent men.

In addition to the state-funded performance equivalents, the fee-paying students generated 856 (714) FTEs and 725 (613) annual performance equivalents in 2017; see Figure 7.

In total, KTH had 1,171 (1,009) fee-paying programme students in 2017, of which 358 were women and 813 men. Of them, 182 (185) were scholarship holders financed by Swedish or KTH-affiliated scholarship programmes, which corresponds to around 16 per cent of the total number of fee-paying students. In addition, there were 27 paying students, of which 12 were women and 15 men, in independent courses. This means that the largest percentage of fee-paying students are self-paying or financed through scholarship programmes that KTH has no information on.

Degrees

In KTH’s development plan for 2013–2017, the targets for the numbers of degrees are 5,400 Masters of Science in Engineering, 480 Masters of Architecture, 4,000 Master’s degrees without previous studies in the Master of Science in Engineering programme at KTH and 1,750 Bachelors of Science in Engineering during the period.

In 2017, KTH issued a total of 1,161 (913) Master of Science in Engineering degrees, 88 (42) Master of Architecture degrees, 1,032 (604) Master’s degrees without previous studies in the Master of Science in Engineering programme at KTH and 337 (214) Bachelor of Science in Engineering degrees. Relative to the development plan for 2013–2017, KTH achieved the qualitative targets for Masters of Science in Engineering and Master’s degrees without previous studies in the Master of Science in Engineering programmes at KTH. For the Master of Architecture and the Bachelor of Science in Engineering, goal attainment was 88 and 91 per cent, respectively.

In total, KTH issued 1,864 (1,099) Master of Engineering degrees. Of them, 832 (495) also received the Master of Science in Engineering in 2017 or earlier. The one-year Master of Engineering degree, 60 HE credits, was awarded to 136 (70) persons.

Of the 1,112 (739) Bachelor of Engineering degrees awarded, 926 (569) were taken out by students in the Master of Science in Engineering programmes and 90 (95) by students in the Master of Architecture programme.

The trend of students taking out several degrees based on the same studies is continuing. In 2017, the percentage that took out another one or more degrees in combination with a Master of Science in Engineering was 68 (56) per cent.

The proportion of women graduating as Master of Science in Engineering was 34 (36) per cent and the proportion of
### Figure 6
**Full year students 2014–2017**

<table>
<thead>
<tr>
<th>Program</th>
<th>2017 Total</th>
<th>2016 Total</th>
<th>2015 Total</th>
<th>2014 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Master of Architecture, 270/300 HE credits</strong></td>
<td>449/61</td>
<td>39/40</td>
<td>466/58</td>
<td>521/54</td>
</tr>
<tr>
<td><strong>Master of Science in Engineering 270/300 HE credits</strong></td>
<td>5,451/33</td>
<td>67/32</td>
<td>5,384/32</td>
<td>5,297/52</td>
</tr>
<tr>
<td>in addition, within Master programmes</td>
<td>2,053/33</td>
<td>67/32</td>
<td>1,938/31</td>
<td>1,865/33</td>
</tr>
<tr>
<td><strong>Bachelor of Science in Engineering 180 HE credits</strong></td>
<td>1,489/26</td>
<td>74/26</td>
<td>1,495/26</td>
<td>1,556/25</td>
</tr>
<tr>
<td><strong>Subject Teacher Education in Technology, Secondary Education, 270 HE credits</strong></td>
<td>3/100</td>
<td>0/0</td>
<td>2/100</td>
<td>4/65</td>
</tr>
<tr>
<td><strong>Bridging Teacher Education 90 HE credits</strong></td>
<td>52/35</td>
<td>65/32</td>
<td>25/30</td>
<td>12/70</td>
</tr>
<tr>
<td><strong>Bridging Teacher Education Programme in Mathematics, Science and Technology for Graduates with a Third Cycle Degree 90 HE credits</strong></td>
<td>13/57</td>
<td>43/37</td>
<td>27/30</td>
<td>14/70</td>
</tr>
<tr>
<td><strong>Masters Programmes 60/90 HE credits</strong></td>
<td>106/55</td>
<td>45</td>
<td>117/51</td>
<td>120/50</td>
</tr>
<tr>
<td><strong>Masters Programmes 120 HE credits</strong></td>
<td>3,297/33</td>
<td>67</td>
<td>3,081/34</td>
<td>2,689/32</td>
</tr>
<tr>
<td>of which within Master of Science Engineering programmes</td>
<td>2,053/33</td>
<td>67</td>
<td>1,938/31</td>
<td>1,865/33</td>
</tr>
<tr>
<td><strong>Bachelors Programmes 180 HE credits</strong></td>
<td>255/37</td>
<td>63</td>
<td>270/39</td>
<td>294/62</td>
</tr>
<tr>
<td><strong>Technical Preparatory Year, Technical Preparatory Semester 60/30 HE credits</strong></td>
<td>577/38</td>
<td>62</td>
<td>619/36</td>
<td>693/66</td>
</tr>
<tr>
<td><strong>University Diploma 120 HE credits, Applied Technology</strong></td>
<td>68/21</td>
<td>79</td>
<td>71/25</td>
<td>77/30</td>
</tr>
<tr>
<td><strong>Exchange students arriving at KTH</strong></td>
<td>574/34</td>
<td>66</td>
<td>609/32</td>
<td>590/31</td>
</tr>
<tr>
<td><strong>Further Education</strong></td>
<td>129/39</td>
<td>61</td>
<td>149/40</td>
<td>195/39</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>13/71</td>
<td>29</td>
<td>12/77</td>
<td>15/71</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>12,476/34</td>
<td>66</td>
<td>12,349/34</td>
<td>12,244/33</td>
</tr>
</tbody>
</table>

Source: Ladok

### Figure 7
**Full year students and performance rate, fee-paying students 2014–2017**

<table>
<thead>
<tr>
<th>Program</th>
<th>2017 FYS performance rate (%)</th>
<th>2016 FYS performance rate (%)</th>
<th>2015 FYS performance rate (%)</th>
<th>2014 FYS performance rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Master of Architecture 300 HE credits</strong></td>
<td>0/0</td>
<td>0/0</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td><strong>Master of Science in Engineering 300 HE credits</strong></td>
<td>1/58</td>
<td>0/40</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td><strong>Bachelor of Science in Engineering 180 HE credits</strong></td>
<td>1/110</td>
<td>1/80</td>
<td>2/64</td>
<td>1/48</td>
</tr>
<tr>
<td><strong>Bachelor Programmes 180 HE credits</strong></td>
<td>7/76</td>
<td>3/52</td>
<td>1/71</td>
<td>0/46</td>
</tr>
<tr>
<td><strong>Masters Programmes 60 HE credits</strong></td>
<td>19/108</td>
<td>18/81</td>
<td>9/110</td>
<td>12/104</td>
</tr>
<tr>
<td><strong>Masters Programmes 120 HE credits</strong></td>
<td>818/84</td>
<td>673/86</td>
<td>530/86</td>
<td>389/85</td>
</tr>
<tr>
<td><strong>Courses</strong></td>
<td>1/58</td>
<td>0/0</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td><strong>Study Abroad Programmes</strong></td>
<td>9/61</td>
<td>19/83</td>
<td>28/72</td>
<td>18/80</td>
</tr>
<tr>
<td><strong>Science without Borders</strong></td>
<td>0/0</td>
<td>0/0</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>856/85</td>
<td>714/86</td>
<td>571/85</td>
<td>420/85</td>
</tr>
</tbody>
</table>

Source: Ladok
Figure 8  
First degrees 2014–2017

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>34/66</td>
<td>913</td>
<td>36/64</td>
<td>1,316</td>
<td>29/71</td>
<td>1,141</td>
<td>30/70</td>
<td></td>
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<tr>
<td>Biotechnology</td>
<td>48</td>
<td>73/27</td>
<td>32</td>
<td>66/34</td>
<td>43</td>
<td>58/42</td>
<td>36</td>
<td>53/47</td>
</tr>
<tr>
<td>Engineering and Education</td>
<td>24</td>
<td>50/50</td>
<td>22</td>
<td>23/77</td>
<td>24</td>
<td>67/33</td>
<td>27</td>
<td>52/48</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>97</td>
<td>10/90</td>
<td>65</td>
<td>6/94</td>
<td>168</td>
<td>13/87</td>
<td>87</td>
<td>13/87</td>
</tr>
<tr>
<td>Design and Product Realisation</td>
<td>108</td>
<td>56/44</td>
<td>62</td>
<td>48/52</td>
<td>76</td>
<td>55/45</td>
<td>84</td>
<td>58/42</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>46</td>
<td>7/93</td>
<td>50</td>
<td>20/80</td>
<td>85</td>
<td>13/87</td>
<td>76</td>
<td>13/87</td>
</tr>
<tr>
<td>Energy and Environment</td>
<td>64</td>
<td>58/42</td>
<td>31</td>
<td>68/32</td>
<td>15</td>
<td>53/47</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vehicle Engineering</td>
<td>98</td>
<td>18/64</td>
<td>80</td>
<td>19/81</td>
<td>120</td>
<td>16/84</td>
<td>102</td>
<td>11/89</td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>101</td>
<td>45/55</td>
<td>106</td>
<td>44/56</td>
<td>118</td>
<td>29/71</td>
<td>141</td>
<td>35/65</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>48</td>
<td>13/87</td>
<td>15</td>
<td>27/73</td>
<td>36</td>
<td>11/89</td>
<td>24</td>
<td>8/92</td>
</tr>
<tr>
<td>Surveying</td>
<td>1</td>
<td>0/100</td>
<td>9</td>
<td>44/56</td>
<td>8</td>
<td>50/50</td>
<td>8</td>
<td>38/62</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>101</td>
<td>19/81</td>
<td>109</td>
<td>23/77</td>
<td>145</td>
<td>25/75</td>
<td>127</td>
<td>20/80</td>
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<tr>
<td>Materials Design and Engineering</td>
<td>25</td>
<td>28/72</td>
<td>21</td>
<td>43/57</td>
<td>32</td>
<td>19/81</td>
<td>44</td>
<td>27/73</td>
</tr>
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<td>Materials Engineering</td>
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<td>0</td>
<td>0/50</td>
<td>2</td>
<td>50/50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>30</td>
<td>47/53</td>
<td>16</td>
<td>44/56</td>
<td>27</td>
<td>59/41</td>
<td>15</td>
<td>80/20</td>
</tr>
<tr>
<td>Media Technology</td>
<td>59</td>
<td>44/56</td>
<td>29</td>
<td>59/41</td>
<td>51</td>
<td>39/61</td>
<td>38</td>
<td>29/71</td>
</tr>
<tr>
<td>Microelectronics</td>
<td>6</td>
<td>0/100</td>
<td>11</td>
<td>27/73</td>
<td>18</td>
<td>11/89</td>
<td>21</td>
<td>24/76</td>
</tr>
<tr>
<td>Civil Engineering and Urban Management</td>
<td>137</td>
<td>43/57</td>
<td>119</td>
<td>51/49</td>
<td>122</td>
<td>41/59</td>
<td>123</td>
<td>33/67</td>
</tr>
<tr>
<td>Engineering Physics</td>
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<td>18/82</td>
<td>85</td>
<td>27/73</td>
<td>130</td>
<td>22/78</td>
<td>119</td>
<td>21/79</td>
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<tr>
<td>Engineering Chemistry/Chemistry and Chemical</td>
<td>46</td>
<td>39/61</td>
<td>42</td>
<td>50/50</td>
<td>69</td>
<td>49/51</td>
<td>55</td>
<td>56/44</td>
</tr>
<tr>
<td>Engineering/Chemical Science and Engineering</td>
<td>Civil Engineering</td>
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<td>0/100</td>
<td>3</td>
<td>0/100</td>
<td>7</td>
<td>43/57</td>
<td>7</td>
</tr>
<tr>
<td>Not within programme/specialisation</td>
<td>10</td>
<td>30/70</td>
<td>6</td>
<td>50/50</td>
<td>20</td>
<td>20/80</td>
<td>7</td>
<td>43/57</td>
</tr>
<tr>
<td>Degree of Bachelor of Science in Engineering</td>
<td>337</td>
<td>33/67</td>
<td>214</td>
<td>25/75</td>
<td>358</td>
<td>23/77</td>
<td>353</td>
<td>27/73</td>
</tr>
<tr>
<td>180 HE credits</td>
<td>26</td>
<td>50/50</td>
<td>12</td>
<td>8/92</td>
<td>0</td>
<td>0/0</td>
<td>0</td>
<td>0/0</td>
</tr>
<tr>
<td>Degree of Master of Science</td>
<td>2</td>
<td>50/50</td>
<td>0</td>
<td>0/0</td>
<td>0</td>
<td>0/0</td>
<td>0</td>
<td>0/0</td>
</tr>
<tr>
<td>in Secondary Education, 225 HE credits, 2 teaching</td>
<td>6</td>
<td>50/50</td>
<td>0</td>
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<td>0/0</td>
<td>0</td>
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<td>subjects</td>
<td>in Upper Secondary Education, 210 HE credits, 1</td>
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<td>53/47</td>
<td>12</td>
<td>8/92</td>
<td>0</td>
<td>0/0</td>
<td></td>
</tr>
<tr>
<td>teaching subject</td>
<td>in Upper Secondary Education, 300 HE credits, 2</td>
<td>21</td>
<td>24/76</td>
<td>15</td>
<td>20/80</td>
<td>25</td>
<td>8/92</td>
<td>7</td>
</tr>
<tr>
<td>teaching subjects</td>
<td>Degree of Master of Science 120 HE credits</td>
<td>1,864</td>
<td>35/65</td>
<td>1,099</td>
<td>33/67</td>
<td>1,344</td>
<td>30/70</td>
<td>1,244</td>
</tr>
<tr>
<td>of which also graduated as a Master of Science in Engineering</td>
<td>832</td>
<td>38/62</td>
<td>494</td>
<td>31/69</td>
<td>580</td>
<td>33/67</td>
<td>493</td>
<td>31/69</td>
</tr>
<tr>
<td>in Engineering</td>
<td>of which joint degree</td>
<td>21</td>
<td>24/76</td>
<td>15</td>
<td>20/80</td>
<td>25</td>
<td>8/92</td>
<td>7</td>
</tr>
<tr>
<td>Degree of Master of Science 60 HE credits</td>
<td>136</td>
<td>50/50</td>
<td>70</td>
<td>43/57</td>
<td>106</td>
<td>43/57</td>
<td>102</td>
<td>40/60</td>
</tr>
<tr>
<td>Degree of Master of Science 240/270 HE credits</td>
<td>0</td>
<td>0/0</td>
<td>4</td>
<td>25/75</td>
<td>28</td>
<td>25/75</td>
<td>16</td>
<td>25/75</td>
</tr>
<tr>
<td>Master Degree 90 HE credits</td>
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<td>0/0</td>
<td>1</td>
<td>0/100</td>
<td>9</td>
<td>44/56</td>
<td>2</td>
<td>100/0</td>
</tr>
<tr>
<td>Degree of Bachelor of Science 180 HE credits</td>
<td>1,112</td>
<td>39/61</td>
<td>739</td>
<td>40/60</td>
<td>873</td>
<td>37/63</td>
<td>757</td>
<td>34/66</td>
</tr>
<tr>
<td>University Diploma 120 HE credits</td>
<td>27</td>
<td>22/78</td>
<td>21</td>
<td>33/67</td>
<td>37</td>
<td>35/65</td>
<td>29</td>
<td>17/83</td>
</tr>
</tbody>
</table>

1) this year and earlier  
2) according to older regulations

Source: Ladok
men 66 (64) per cent. For the Master of Architecture, women made up 58 (62) per cent and men 42 (38) per cent. See Figure 8 for the gender distribution within programme types and programmes.

KTH also issues master’s degrees jointly with other universities. The number of degrees issued jointly with other universities was 21 (15) in 2017.

In 2017, 20 (6) one-year master’s degrees and 369 (162) two-year master’s degrees were issued to students who had paid tuition fees for their studies at KTH. These degrees are included in the information presented above. The trend shows that the number of students who pay tuition fees continues to grow.

Career support

KTH Career’s activities are focused on offering support for students in the transition to working life. Activities in 2017 included career coaching for national and international students and lunch seminars and workshops on career development in English and Swedish, and the development of a career web with digital career tools.

Third-cycle education

Recruitment

Third-cycle education at KTH is attractive, which means that there are many applicants to the advertised doctoral studentships. A high level of competition benefits the quality of education. In 2017, KTH conducted coordinated advertisement of places in doctoral studies in the daily press. The aim of such coordinated advertising is to give KTH a high profile and increase interest in KTH as both a workplace and a university.

In 2017, a total of 209 (203) doctoral student position were advertised. A total of 14,788 people applied for these, 3,103 of them women and 11,642 men. Of the total number of applicants, 43 did not indicate their gender. Recruitment to doctoral studies also takes place without prior advertising. This relates to doctoral students funded via scholarships, partnerships with industry, etc., as well as doctoral students in primarily international collaboration.

Admissions

According to the KTH development plan for 2013–2017, a total of 1,450 doctoral students were to be admitted during the period. In 2017, 355 (292) doctoral students were admitted. The percentage of women was 28 (30) per cent and of men was 72 (70) per cent. Of the new doctoral students, 11 per cent were admitted to take a licentiate degree. Of them, 38 percent were women and 62 percent were men. In total over the period 2013-2017, 1,552 doctoral students were admitted, which means that KTH achieves the target.

Of the year’s new doctoral students, 39 (34), of which 26 per cent were women and 74 per cent were men, have their main activities outside the university and conduct their doctoral studies in the scope of their employment (externally employed doctoral students). The employer may be in the private or public sector.

Of those admitted to doctoral studies in 2017, 34 (32) per cent or 121 (94) people had a KTH degree. Among them, it was most commonly a Master of Science in Engineering. Of the new doctoral students with KTH degrees, 53 (51) per cent have a Master of Science in Engineering and 45 (49) per cent a two-year master’s degree. Of the new doctoral students in 2017, 48 (48) per cent have a degree from a country other than Sweden.

Level of activity and financing of studies

Of a total of 2,000 registered doctoral students in an activity at KTH in 2017, 1,767 have worked at least 50 per cent of full time, and 1,974 have worked at least 10 per cent.

In 2017, employment as a doctoral student continued to be the predominant form of financing studies. At year end, 1,108
or 62 per cent of doctoral students at KTH had this form of financing on a full or part-time basis. Of those who had doctoral employment, 30 (30) per cent were women and 70 (70) per cent were men.

Of the doctoral students, 14 per cent financed themselves by means of paid work connected with the study programme (externally employed doctoral students), 4 per cent by means of other positions within the university and 13 per cent through full or part-time scholarships. 7 per cent financed their studies, full or part time, through other means. A large number of the doctoral students who finance their studies through scholarships receive them from the China Scholarship Council.

**KTH’s doctoral programmes**

The doctoral programmes were established in 2011 and there are 31 of them today. All of the new doctoral students are admitted to a doctoral programme or a programme that KTH offers in cooperation with one or more partners. The purpose of the doctoral programmes is to ensure the quality of the education in an organised structure of study. A number of quality requirements are set in terms of purpose, target group and content, etc. in order to establish a doctoral programme. The doctoral programmes have support at KTH’s schools and the introduction was beneficial to the quality of the doctoral studies. Since 2016, a review has been under way of general study plans for subjects in doctoral studies and programme descriptions for doctoral programmes. More information about this may be found in the section entitled Quality management.

**Student mobility in third-cycle education**

There is a large international element in KTH’s doctoral studies. Of the new doctoral students in 2017, about 50 per cent have a qualifying degree from a country other than Sweden. Statistics Sweden requests, on behalf of the Swedish Higher Education Authority, information on stays abroad for those earning a PhD or licentiate in the past year. The last measurement in 2016 showed that 22 per cent of the third-cycle graduates had spent time abroad in the scope of their education.

**Degrees**

KTH’s development plan for 2013–2017 sets 1,450 doctoral degrees as the target for the period. In 2017, 307 (279) PhDs and 71 (100) licentiate degrees were awarded. Of those earning PhDs, 32 (28) per cent were women and 68 (72) per cent...
were men. Of those earning licentiate degrees, 25 (31) per cent were women and 75 (69) per cent were men. Of the year’s PhDs, 10 (10) were awarded jointly with other universities. In total during the period 2013–2017, KTH awarded 1,445 PhDs, i.e. on a par with the set target of 1,450.

Awarding a licentiate degree as a step in doctoral studies, and thus providing a natural check of studies to date, is normal at KTH. Of those awarded a doctoral degree in 2017, 31 (34) per cent had previously been awarded a licentiate degree. A technical licentiate degree is also extremely relevant for employment in industry.

Calculations of the study period for students who are awarded doctoral degrees show that the net study period for a doctoral degree in 2017 was 4.3 (4.3) years and 2.6 (2.6) years for a licentiate degree. Women have a shorter actual period of study than men for both of the degrees. The calculations of the study period are done according to the procedures provided through the study documentation system Ladok.

**National collaboration**

**Conditions for educational collaboration**

KTH’s development plan for 2013–2017 states that KTH will develop structures for educational collaboration. KTH has developed internal rules, as well as support documents and a processing procedure. KTH has also set up a working group for educational collaboration.

**Teacher education programmes**

Master of Science in Engineering and Education

The combined engineering and teacher education programme is run in close collaboration with Stockholm University (SU). The Master of Science in Engineering and Education programme leads to an MSc degree as well as subject-related teaching qualifications for upper secondary school in mathematics and one of physics, chemistry or technology. KTH is authorised to award both examinations. Recruitment to the programme has been stable. In the autumn semester of 2017, the programme had 98 first choice applicants and 481 applicants in total. 60 students began the programme and the percentage of women among the beginners was 43 per cent and for men, it was 57 per cent. In 2017, 17 students graduated from the programme.

The engineering and teaching programme, which was offered from 2002 to 2010, was a programme on the government’s assignment (U2002/1041/UiH). SU issues the teaching degree and KTH issues the engineering degree to those who complete the programme. KTH was not authorised to issue the teaching qualification during the years this programme was current. From this programme, KTH and SU jointly awarded degrees to seven students in 2017.

In 2017, four lunch seminars were held with the theme of research and the programme’s history. During the year, three alumni meetings were also held for year one, which was appreciated by all of the participants.

**Subject teacher programme**

In 2017, the development of the subject teacher programme and Bachelor of Science in Engineering continued. The programme, which according to its plan will begin in the autumn semester of 2018, comprises 270 credits. It will lead to two different degrees: a Master of Science in Secondary Education in Technology and Mathematics and a Bachelor of Science in Mechanical Engineering with a focus on innovation and design. The programme will comprise four years of full-time studies including two summer semesters and is located at both KTH Södertälje and KTH Campus.

**Bridging teacher education**

The bridging teacher education programme comprises 90 higher education credits and leads to a teaching degree for upper secondary school and years 7–9 of compulsory school in one or more of the subjects physics, chemistry, mathematics and technology. To be admitted to the programme, adequate academic qualifications in these subjects are required. The bridging teacher education programme began for the first time at KTH in June 2016. The programme is provided at a distance, with instruction at KTH a few days a month. The rest of the time is devoted to self-study or teaching via a web platform. Some parts of the programme are offered by SU. The programme also runs during the summer semesters, which means that a student who begins in June can be a finished teacher at the end of August the following year. One third of the education is comprised of placement, which means that the students are on site at a school where they participate in the daily work under supervision.

In June 2017, 43 students began the programme. At the end of the year, around 30 students were still active. The majority of those who dropped out were due to the students finding work in their old profession. Of the students who began in 2016, nine graduated with degrees. Several are not yet done with their degree projects, but are expected to finish in spring 2018.

The bridging teacher education programme for those with PhDs or licentiates is conducted jointly by KTH and SU and leads to a joint degree.

The programme is included in a special project that is under way from 2016 to 2021 and aims to train 250 subject teachers during this period. The other participating universities are Karlstad University and Umeå University. Those admitted to the programme have the opportunity to receive a special educational grant during the period of study. The programme comprises 90 credits and runs over 12 months at a higher rate of study. Prior to the start of the programme in
### Doctorate and licentiate degrees 2014–2017

<table>
<thead>
<tr>
<th>Doctorate degrees per research field</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
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<tbody>
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<td>Total</td>
<td>Proportion (%)</td>
<td>Total</td>
<td>Proportion (%)</td>
</tr>
<tr>
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<tr>
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<td>26/74</td>
<td>35</td>
<td>26/74</td>
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<td>38/62</td>
<td>12</td>
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<tr>
<td>Health Sciences</td>
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<td>0/100</td>
<td>3</td>
<td>67/33</td>
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<tr>
<td>Industrial Biotechnology</td>
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<td>40/60</td>
<td>8</td>
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<td>Chemical Sciences</td>
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<td>100/0</td>
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<tr>
<td>Other Engineering Technologies</td>
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<td><strong>Total</strong></td>
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<td>279</td>
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<th>Of which joint degree</th>
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<th>2015</th>
<th>2014</th>
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<td></td>
<td>Total</td>
<td>Proportion (%)</td>
<td>Total</td>
<td>Proportion (%)</td>
</tr>
<tr>
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<td>Physical Sciences</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>History and Archaeology</td>
<td>4</td>
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<td>40/60</td>
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<td>Health Sciences</td>
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<td>0</td>
</tr>
<tr>
<td>Industrial Biotechnology</td>
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<td>100/0</td>
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<td>Chemical Sciences</td>
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<td>2</td>
<td>50/50</td>
</tr>
<tr>
<td>Chemical Engineering</td>
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<td>Arts</td>
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<td>Other Engineering Technologies</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1</td>
<td>0/100</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| Total                               | 71    | 25/75 | 100  | 31/69 | 122  | 31/69 | 125  | 30/70 |

Source: Ladok
January 2017, 233 first-choice applicants applied to 25 planned places. Of the 23 beginners, 16 remain. The majority of those who dropped out were due to the students finding work in their former profession. Due to changed rules for grant disbursements, only 18 students will be accepted for January 2018.

Cooperation with universities of fine arts

KTH’s development plan for 2013–2017 states that collaboration will be developed with artistically-oriented universities, in particular the University College of Arts, Crafts and Design. In 2011, a declaration of intent was signed regarding extended collaboration in education and research between KTH and the University College of Arts, Crafts and Design. In 2013, a doctoral programme was established at KTH in which the University College of Arts, Crafts and Design is responsible for a considerable part of the teaching. The programme focuses on the intersection of art, technology and design. The first doctoral students were admitted in 2014. In addition, in 2017, teachers active at the Royal College of Music were linked to KTH for doctoral studies. In order to provide doctoral students, supervisors and researchers with a good shared environment, a centre formation will be established in collaboration between KTH, the University College of Arts, Crafts and Design and other arts universities. In 2016–2017, a vision and organisation plan was prepared for this centre formation. Also, a declaration of intent was signed regarding extended collaboration in education and research with the Royal College of Music and with the Stockholm University of the Arts.

Licentiate programme in cooperation with external stakeholders

KTH has established a Professional Licentiate of Engineering School (PLEng), with licentiate degrees as the objective and in close cooperation with industry and other external stakeholders. The school is primarily aimed at professionals who wish to train for leadership positions in research and development. In 2017, the school will go over to permanent operation at KTH. The school has seven doctoral students.

Other collaboration

In January 2011, KTH and Mid Sweden University signed an agreement to collaborate on strengthening the Master of Science in Engineering programmes. This agreement runs up to and including 2017 and means that students can continue on certain master’s programmes at KTH after the first three years of an engineering programme at Mid Sweden University. In autumn 2017, 10 (4) students from Mid Sweden University began master’s programmes at KTH.

KTH and SU entered an agreement on a joint programme at the master’s level in mathematics that leads to a joint degree. In autumn 2017, 15 (13) students began the programme and five students graduated.

A three-party collaboration project between KTH, Karolinska Institutet (KI) and SU was established in 2014 for the Science for Life Laboratory (SciLifeLab) in Stockholm. The collaboration project is taking place within the framework of a master’s programme, leading to a joint degree. The first students were admitted to the programme in autumn 2015. In autumn 2017, 23 (20) students began the programme and five students graduated.

Since 2014, KTH and KI have conducted a joint third-cycle programme in medical technology. The collaboration leads to a joint degree. In 2017, one doctoral student was admitted. One PhD was awarded during the year.

International cooperation

Strategic cooperation partners and networks

In 2017, KTH got involved to a greater extent in the network CESAEr (Conference of European Schools for Advanced Engineering and Education). The network was founded in 1990 and consists of 51 leading technical universities from 26 countries in Europe. It focuses on policy issues in education and research and represents the technical universities among other things in issues that concern European research financing and issues in Open Science. At the annual meeting in October, the President of KTH was elected to CESAEr’s board.

In 2017, KTH continued the cooperation with six strategic partners: University of Illinois at Urbana-Champaign in the USA, Aalto University in Finland, Nanyang Technological University in Singapore, Shanghai Jiao Tong University in China, The Hong Kong University of Science and Technology in Hong Kong and the University of Tokyo in Japan. Joint projects have been initiated in both education and research. Experiences have clearly shown that financing for the start of joint projects offers a good effect. In 2017, KTH was granted funding for around 30 projects.

In 2016–2017, KTH held the chairmanship in the network N5T (Nordic Five Tech). The chairmanship was turned over to the Technical University of Denmark in April 2017. In 2017, N5T acted to a greater extent than before at an EU level and issued statements concerning the EU’s direction and efforts prior to the upcoming framework programme FP9. A new working group where KTH is the convener was formed to support applications for research funding, among other things, in the unique Nordic areas.

KTH participates in the network Deans Forum together with MIT, University of Cambridge, University of California, Oxford University and University of Tokyo, among others. Within Deans Forum, focus has been on cooperation between universities and business and work is being done to develop mobility for students and researchers by being able to offer possibilities for placement at companies. KTH arranges placement in cooperation with Scania.
In the European network cluster (Consortium Linking Universities of Science and Technology for Education and Research), two sub-groups have been created, International Dimension and Grants and Applications Support Team. During the year, these supported joint project applications in Erasmus+ and created a framework for international education weeks in various areas for the staff of the member universities. A project proposal on a strategic partnership in Erasmus+, which aims to introduce entrepreneurship components in the curricula, has been selected for financing and will run between September 2017 and August 2020 under the coordination of KTH. Within the framework of cluster, KTH coordinated the Erasmus+ project REDEEM for two years, and a concluding conference was held at KTH in October. The project’s objective was to benefit from the experience around international master’s programmes, where the students receive degrees at two universities, to develop even more attractive programmes in the future. Particular focus was on the students’ employability after their studies.

Within the network Magalhães, consisting of 36 universities in Latin America and Europe, KTH and Instituto Superior Técnico in Lisbon coordinate the project group that promotes joint project applications for external financing within Erasmus+ among other things. The network’s ambitions are expanded this year to also encompass research collaboration and joint educational programmes in aerospace engineering, material sciences and sustainable energy technology.

European Institute of Innovation and Technology (EIT)
KTH participates in four of EIT’s knowledge and innovation groups (KICs), in the areas ICT (EIT Digital), energy (EIT InnoEnergy), materials (EIT Raw Materials) and health (EIT Health).

For EIT Digital, KTH continues to be responsible for admissions, study follow-up and examination while management, financial compensation and parts of recruitment and programme development have been taken over by EIT Digital’s central office.

During the year, 539 (699) applicants were admitted to the master’s programme within EIT Digital. The relatively large difference compared with the previous year is due to a new procedure where the students received a preliminary decision that they were forced to accept before they underwent a check of general entry requirements and could be accepted. 270 (289) began their studies at one of the 19 partner universities in the consortium, of which 28 (26) per cent women and 72 (74) per cent men. Of these 270, 47 (62) began their studies in year one at KTH. After completing the first year of study at one of the partner universities, 94 (74) students commenced their second year at KTH in 2017.

The proportion of self-paying students corresponds to 31 (38) per cent. The other students receive some form of scholarship from EIT Digital or are not subject to tuition fees. The students come from 43 different countries, thus confirming that there is a wide recruitment base.

Within EIT InnoEnergy, seven master’s programmes are offered, of which KTH participates in five. In autumn 2017, 109 (84) students began their first year at KTH. 35 (15) students began the second year of their studies at KTH after one year at one of the partner universities. Since the programmes began to be offered in 2014, the number of students at KTH has doubled.

Erasmus+
From the 2017 announcements in Erasmus+, KTH was awarded a total of 14 projects as coordinator or partner, which is slightly less than the previous year.

In the area of capacity expansion, KTH will coordinate two new projects and participate in another eight new projects as a partner. These new projects have a geographic spread that includes Russia, Central Asia, India, the Middle East, North Africa and Tanzania. In total, KTH participates in 26 projects in Erasmus+ capacity expansion, of which four as coordinator. The projects cover the development of new educational programmes in technology, the environment and sustainable development, e-learning, geographical information systems and company systems, as well as development of infrastructure to support students, innovations and university administration.

KTH was also granted mobility scholarships for non-European exchanges of students and staff with universities in Russia and Egypt. As in previous years, KTH also obtained a large number of scholarships for mobility within Europe for studies, practice and the exchange of staff.

KTH is a part of five strategic partnerships with a focus on entrepreneurship, gender balance in science and technology education and development of doctoral programmes. There were a total of 151 (163) Erasmus Mundus Joint Master students registered in 2017. The five doctoral programmes within Erasmus Mundus are continuing without new admissions with annual doctoral defences until 2020. KTH is also participating as a partner in an Erasmus Mundus Joint Mater programme approved during the year, which will admit students beginning in 2018.

KTH Global Development Hub
KTH Global Development Hub (GDH) is an initiative to implement a challenge-driven educational model through mutual learning between KTH and universities in sub-Saharan Africa. GDH has developed five partnerships to work together on integrating challenges for global development in the regular curriculum. During the autumn of 2017, KTH received five students within GDH and appointed seven students for exchanges in Kenya.
Linnaeus-Palme

Linnaeus-Palme is a Sida-financed exchange programme, the purpose of which is to stimulate bilateral exchanges between universities in Sweden and developing countries. KTH applied for a total of five Linnaeus-Palme projects for 2017, of which two were approved and allocated funding. Both of the projects include student and teacher exchanges in cooperation with universities in Santa Clara, Cuba and in Manilla, Philippines. In total, 16 teachers and students are participating in the exchange during the period May 2017 to September 2018.

Research Training Partnership Programme, Sida

KTH was granted two projects in 2016–2017 within Sida’s five-year research initiative Sweden’s Research Training Partnership Programme – Mozambique. KTH is leading a project and participating as a partner in a project that concerns cooperation between KTH and Eduardo Mondlane University in Mozambique. The partnerships are about policy and innovation studies in higher education and geographic information systems, respectively.

Marie Skłodowska-Curie

Marie Skłodowska-Curie is part of the EU Horizon 2020 programme and is the most important mobility programme for doctoral students and researchers. In 2017, KTH researchers were invited to a number of applications in Marie Skłodowska-Curie. In 2017, one project with KTH as the coordinator and five new projects with KTH as a participant were granted. In total, KTH is involved in 40 projects in the programme.

China Scholarship Council

As part of the scholarship collaboration with the China Scholarship Council (CSC), KTH was granted 47 doctoral students, 13 guest doctoral students and three visiting researchers/postdocs during the year.

Projects for joint doctoral thesis defence

During the year, KTH began a project with funding from T.I.M.E. Association to investigate the prerequisites for joint doctoral thesis defence. The aim of the project is to develop a detailed documentation with selected partner universities for future agreements on joint doctoral programmes and/or joint supervision of doctoral students. T.I.M.E. Association brings together around 50 technical universities in Europe. The cooperation mainly concerns student exchange that results in double engineering degrees.
Research

Objectives
In KTH’s development plan for 2013–2017, it is established that KTH with confidence shall take the initiative in pioneering research thanks to researchers with leading expertise and creative, dynamic and well-equipped research environments.

The following concrete targets are given for what KTH should achieve in 2013–2017:

- SEK 400 million in annual financing from the EU and other international actors. (2017: SEK 272 million in grant revenue)
- SEK 270 million annually in research financing from Swedish and foreign companies. (2017: SEK 150 million in grant income and SEK 70 million in assignment income received)
- 1.2 field-normalised citation rate (Citation rate 2017: 1.17)
- 3,100 peer reviewed articles. (2017: 3,170)

External research financing
KTH has a high proportion of external financing, both from the public sector and from other actors in Sweden and abroad. Swedish and foreign companies contribute to the external financing through commitment to many research projects. For a number of years, KTH has been working on creating strong strategic partnerships with companies in which financing of research is part of the collaboration, such as through centres or research projects. However, in most project collaboration with companies, there is no direct financing by the companies, but instead the companies contribute working input to the projects. For more information, see the section on Collaboration.

EU financing
International research financing accounts for approximately 10 per cent of the research income. The EU is the primary source of financing. International research financing also includes other financiers in the EU, U.S. Financing and to a smaller extent grants from other regions and supranational organisations, such as the UN. NordForsk also offers opportunities for KTH.

In 2017, the EU’s framework programme Horizon 2020 closed the final requests for proposals in the work programme or 2016–2017. The final work programme for 2018–2020 was launched. KTH is the Swedish university that received the most projects from Horizon 2020 with 158 approved projects. In terms of financing, KTH is in third place among Swedish universities during the same period. KTH was granted more than EUR 70 million within Horizon 2020 (2014–2017).
Figure 13 presents the distribution of KTH’s approved projects to-date within Horizon 2020 (2014–2017). The projects are distributed in the areas of cutting-edge research, industrial leadership and social challenges, Euratom, the dissemination of leading expertise and broader participation and science with and for society. KTH researchers are well represented in information and communication technology (24 projects), as well as in the social challenge of smart, green and integrated transports (20 projects). Note that the figure is based on statistics from 30 September 2017. During October to December, KTH was granted another five projects.

Prior to the launch of the new work programmes, the Research Office held a workshop week, Funding at the Horizon, directed at KTH’s researchers with a focus on KTH’s strong research areas. The cooperation was strengthened with the strategic partners the City of Stockholm and Stockholm County Council (SLL) through activities to achieve joint applications within Horizon 2020. KTH submitted opinions on the EU’s Midterm Review of Horizon 2020.

During the year, extensive advocacy work was done prior to the upcoming framework programme with the working name FP9. KTH submitted opinions both directly to the European Commission, at a hearing at the Government Offices where the President and Vice President for Research participated, and together with other universities through SUHF, in a joint input from the CESAER network and the Nordic5Tech network.

During 2017, approximately 260 applications were submitted from KTH, of which 34 were granted. KTH coordinates one of the new projects. Divided into the various programmes within Horizon 2020, two of the projects granted are in ERC (for individual pioneering research), six in the Marie Skłodowska Curie project (researcher mobility) and 26 in research collaboration focusing on societal issues and technical development. For the period 2013–2017, the goal was 25 new ERC grants and the outcome was 23.

In 2017, two researchers were awarded Advanced Grants (2016 call for proposals, but the results came in 2017):

Lars Berglund at the School of Chemical Science, who is the lead applicant, and Joakim Jaldén at the School of Electrical Engineering, who is a co-applicant. The call for proposal for Starting Grants in 2017 did not result in any grants to KTH researchers. The results for Consolidator Grants 2017 are more positive – of a total of 12 applicants, two grants were awarded: Dejan Kostic, School of Information and Communication Technology, and

Per Högselius, School of Architecture and Built Environment. Dejan Kostic previously had a Starting Grant and thereby received his second ERC grant.

The results for Advanced Grants 2017 will not arrive until early 2018. No grants were received within Proof of Concept in 2017.

National external financing

External research financing from Swedish financiers with regard to what kind of research is supported, what instruments are used and what financiers may be relevant continues to follow the same direction as in recent years. During the year, KTH continued to be successful in obtaining financing from the Swedish Foundation for Strategic Research, and from the Swedish Research Council’s large call for proposals, both of which support primary research to a large extent. Below is a description of grants awarded in 2017.

In 2017, the Swedish Research Council granted KTH funding of SEK 289 million, SEK 132 million of which was in the major science and technology announcement. KTH was again one of the universities that received the most funding granted in this call for proposals. In addition to this, it went very well for KTH in the applications made to the Swedish Research Council’s investments in Swedish research infrastructure. The three applications where KTH is the lead applicant were approved, National Genomics Infrastructure, operating funding for participation in the experiments ATLAS and ALICE at CERN and the Worldwide LHC Computing Grid. Operating funding was also granted for Swedish participation in the Gamma Tracking Array project. Funding was also granted in six out of the seven applications where KTH is a co-applicant.

For the first time, two professors at KTH have been awarded funding from the Swedish Research Council’s Distinguished Professors Programme. Lichen Sun, School of Chemical Science, is receiving SEK 50 million and Karl Henrik Johansson, School of Electrical Engineering, is receiving SEK 47 million over ten years. The purpose of the programme is to create conditions for prominent researchers to conduct long-term research with major potential and equally great risk taking. The grants will also enable the establishment and build-up of a research environment of the highest quality.

Vinnova is an important external research financier for KTH and awarded grants for SEK 154 million in 2017. This includes investments in two new competence centres for research environments: Centre for Advanced BioProduction (aBiOPRO), which is led by Véronique Chotteau at the School of Biotechnology and the Center for eCO2 Vehicle Design (eCO2), which is led by Jenny Jerrelind at the School of Engineering Sciences. These centres are receiving between SEK 4 million to SEK 8 million per year over five years.

The Knut and Alice Wallenberg Foundation granted a major research grant to Val Zwiller, School of Engineering Sciences, to further develop so-called quantum detectors. The grant is SEK 35 million and runs over five years. In 2017, the foundation also awarded the Wallenberg Scholar grant to Danica Kragic Jensfelt, School of Computer Science and Communication, and Lars Berglund, Director of the Wallenberg Wood Science Center, which are each receiving up to SEK 15 million distributed over five years.
Hans Hertz, School of Engineering Sciences, had his grant extended with another SEK 15 million for five years.

Karim Adiprasito at the School of Engineering Sciences was named a Wallenberg Academy Fellow and is receiving SEK 10 million over five years for his research in mathematics.

Michael Malkoch, School of Chemical Science, is receiving continued financing as a Wallenberg Academy Fellow with SEK 9 million over five years.

Maria Saprykina, David Rydh, Jakob Nordström, Erik Duse and Ludvig af Klinteberg were granted funding within the Wallenberg Academy Programme in Mathematics.

The initiative Wallenberg Autonomous Systems and Software Program (WASP), where KTH is involved, is receiving a major capital infusion from the foundation, which is granting a total of SEK 1 billion over ten years.

In 2017, Formas awarded KTH researchers SEK 56 million in grants. In the call for proposals in circular and biobased economics, KTH is the university that had the most applications approved, with four out of a total 14 projects, for a total of SEK 19 million. Moreover, KTH has a large part in the project where the Stockholm Environment Institute is the lead applicant.

In its Industrial Research Centres research programme, the Swedish Foundation for Strategic Research (SSF) granted SEK 100 million to KTH to develop the next generation of underwater robots. The funding is going to the research centre the Swedish Maritime Robotics Center, SMARC, where Ivan Stenius, School of Engineering Sciences, is the Center Director.

Within SSF’s Big data and computational science programme, KTH is one of four universities in Sweden awarded grants. KTH received three out of a total seven awarded grants and they went to Seif Haridi, School of Information and Communication Technology, who was granted SEK 33 million, Jens Lagergren, Science of Life Laboratory, SEK 28 million, and Tino Weinkauf, School of Computer Science and Communication, SEK 26 million.

SSF also decided to finance 12 new industry-employed doctoral student of which four are at KTH.

In 2017, Mistra awarded grants of SEK 45 million to a research programme in sustainable consumption. KTH will lead the work where a number of significant actors from academia, industry and the public sector are involved. They are providing an additional SEK 5 million in co-financing. Programme managers are Åsa Svenfelt and Karin Bradley from the School of Architecture and Built Environment. During the year, Mistra TerraClean also started where KTH is the programme host with Ulrika Edlund, School of Chemical Sciences, is the programme manager. Mistra is contributing SEK 51 million and here too, a number of actors from academia, industry and the public sector are involved and provide co-financing of SEK 9 million.

Among other major external research financiers, the Swedish Energy Agency can be mentioned, financing research at KTH for SEK 138 million in 2017.

**Prizes to KTH researchers**

Professor Mathias Uhlén, School of Biotechnology, was awarded the Foundation Forska! Sweden’s Researcher Prize for 2017 for the mapping of human proteins.

Professor Val Zwiller, School of Engineering Sciences, was awarded the Göran Gustafsson Prize in Physics for his innovative research in quantum optics and nanophysics that may lead to deeper understanding of fundamental quantum physics and important openings to future quantum communication.

**Centres and other special efforts**

Centres are important for KTH in its development of competitive research environments with industrially relevant issues and to help contribute networks for senior researchers and doctoral students. A centre is a neutral collaboration platform where different parties agree on a common operations plan and contribute resources for its implementation.

In 2016 and 2017, an internal audit was done of KTH’s handling of centres that showed that a number of issues needed to be investigated more closely. This applies for example to the update of KTH’s centre guidelines, development of approaches in communication for centres, training of centre directors and overviews of the internal work processes. In 2017, work began to address these.

The outcome will be reported and implemented in 2018. KTH’s centre formations are undergoing some transformation. The financing for some centres will be concluded in the next few years and new centres will be formed to develop strategically important areas for KTH.

Some centres, financed by Vinnova and the Swedish Energy Agency, received extended financing during the year. This includes the Swedish Gasification Centre (biogasification), Competence Center for Gas Exchange, CCSX, Fossil Free Fuels, f3, Hero-M and the Swedish Centre for Smart Grids and Energy Storage, SweGrids. The Centre for Banking and Finance REF was closed during the year.

As a part of the strategic collaboration conducted between KTH, Stockholm County Council and Karolinska Institutet, the three parties are now jointly forming a centre, MedTechLab, after collaboration has been conducted in project form for some time. The centre will support and promote research cooperation in medical and technical research. The collaboration is expected to facilitate the collaboration between the parties in the area and lead to improvement and progress in medical equipment, among other areas. Development projects are to be identified, evaluated and conducted within the scope of the centre. These projects are financed at 6/8 by funds allocated from SLL and 1/8 from KTH and KI,
respectively. Some development projects have already begun.

KTH received SEK 40 million in financing from the Swedish Research Council and Vinnova to start a research centre in biological pharmaceuticals. The centre, Cellnova, aims to contribute to Sweden becoming a leader in the development and production of biological pharmaceuticals in cooperation with pharmaceutical companies and healthcare.

**Strategic innovation programmes**

Strategic innovation areas are an effort where leading players from industry, academia and the public sector jointly define areas where they see a need for joint efforts. In the research bill Knowledge in collaboration – for society’s challenges and stronger competitiveness, the government points out strategic innovation areas as one of the main efforts being conducted to address the major social challenges Sweden is facing. Since 2013, within the framework of these areas, Vinnova, the Swedish Energy Agency and Formas finance strategic innovation programmes and KTH participates in ten of the 17 programmes established to-date. KTH coordinates two of them, InfraSweden2030, which was approved in 2015 and has a focus on solutions for a resource-efficient and sustainable transport infrastructure. Viable Cities (formerly Smart Sustainable Cities) was approved in 2016 and focused on making smart cities a central solution in the transition to a sustainable society.

As of 2017, the strategic innovation programmes receive extra coordination funding both for participation in the Government’s five appointed strategic collaboration programmes and for national and international gearing up.

**Strategic research areas**

Since 2010, KTH has been responsible for five strategic research areas, and has also participated in a further five where other universities have the main responsibility. For the strategic research areas for which KTH is responsible, work began in 2017 to develop a process for uniform handling and result reporting to the end of 2022.

In the budget bill for 2018, the Government announced in planning conditions for the sector that KTH will be allocated SEK 78 million in 2020 within a new strategic research area – digitalisation. This is to strengthen the initiative in IT and mobile communication. A strategy effort for the expanded assignment and what formats it will take pace in was begun in 2017.

**Sustainable production initiative in Södertälje**

KTH’s stake on Södertälje comprises new education, new research, a new campus, but also greater collaboration with industry and society at the newly formed Department of Sustainable Production Development (hpu). Besides KTH, Scania, AstraZeneca, Acturum and Södertälje Municipality are participating in the initiative. The research profile is sustainable industry with three different specialisations: process and flow control, operating and maintenance strategies, and logistics and supply systems. According to the planning, the faculty will grow to around 60–80 people by 2022, and the majority of the new employees will have both teaching and research in their position. Together with the Government’s initiative, there are agreements on financing from Scania, AstraZeneca and Acturum, as well as the Wallenberg sphere with financing for professorships and in-kind funding through industry-employed doctoral students and adjunct professors. The Municipality of Södertälje supports the efforts with funding for infrastructure, among other things.

The establishment of the research organisation is in full swing. In 2016, two associate professors and two adjunct professors were in place. In 2017, three professors, one associate professor and one assistant professor were appointed. One more professor and one associate professor will be appointed in the first half of 2018. The operations are also appointing several lecturers to teach in the engineering bachelor’s programmes. In autumn 2017, HPU was awarded research grants for a total of around SEK 9 million within Production 2030/ Vinnova. In addition, HPU is a part of Vinnova’s competence centre HELIX, which will be under way in 2017–2021 with the main centre at Linköping University. In 2017, HPU published four articles and presented research at international conferences.

In January 2018, the operations will move to the premises being renovated and built in the northern core in Södertälje. In the new premises, KTH’s activities will also become a neighbour of the newly formed Södertälje Science Park AB. Through proximity to Södertälje Science Park, there is potential for further collaboration with industry and society. In January 2018, the plan is for Open Prototyping Södertälje, an open prototype workshop, to begin. Another example of cooperation is the regional fund project Matlust linked to sustainable production in Södertälje Science Park. KTH is participating mainly through the Lean Centre, but also through student projects in the innovation and design specialisation in the Bachelor of Science in Mechanical Engineering programme in Södertälje.

**Science for Life Laboratory (SciLifeLab)**

Together with Max IV and ESS, Science for Life Laboratory (SciLifeLab) is one of the Government’s three major research infrastructure initiatives in Sweden. With SEK 261 million in support from the Government for a national research infrastructure, SciLifeLab assists Sweden’s research community in molecular life sciences with advanced technologies and expertise to be able to conduct research on the forefront and answer complex biological and medical questions. In addition to this, there is SEK 154 million in strategic research funding that SciLifeLab’s four host universities, KTH, Karolinska Institutet, Stockholm University and Uppsala University contribute to the research environment.

During the year, the research infrastructure underwent a
reorganisation and conducted an effort to clarify the technology areas within which SciLifeLab offers service. The reorganisation resulted in 11 technology areas with the aim of making it easier for the users to find relevant service and encourage the possibility to turn to more one facility or platform with their research question. In 2017, a data centre (SciLifeLab Data Centre) was also established as a central support function to support the research infrastructure’s needs in terms of IT and data processing. Major focus was placed on data security and control of how sensitive research data is made available and to facilitate coordination and communication on data processing both for the research infrastructure and its users. In 2017, the research infrastructure provided service to more than 1,400 academic researchers from all the major universities with life science research in Sweden. In addition to the academic projects, the research infrastructure also provided service to healthcare (11 per cent of the resources) and to industry (4 per cent of the resources).

In addition to SciLifeLab’s research infrastructure and its users, SciLifeLab’s academic activities also encompass SciLifeLab’s research environment, which is comprised of researchers who are active at the host universities and tied to SciLifeLab. The research infrastructure, its users and the research environment are included in an ecosystem where technologies and knowledge are used and developed to enable the best research in molecular life sciences in Sweden. During the year, a decision was made to start a number of national programmes in molecular life sciences, so-called SciLifeLab Research Community Programmes, to stimulate synergy effects in major national cooperation projects. A national call for proposals was initiated in 2018 with the goal of starting up a small number of programmes in the latter half of the year.

In 2017, SciLifeLab further developed its role as a national centre for life science research, in part through an in-depth focus on cooperation with other research units in Sweden and abroad. An example is the platform for diagnostic development that together with healthcare, other public operations and industry, and with financing from Swelife/Vinnova, runs the project Genomic Medicine Sweden. The project aims to ensure access to large-scale genetic analyses for diagnostics of mainly cancer and rare diseases to all patients in Swedish healthcare regardless of regional location. Another example is a new collaboration between the clinical genomics facility and the IVL Swedish Environmental Research Institute to study the effect of water treatment methods on the origin of resistant bacteria strains, where the long-term goal is to minimise the risks of development of antibiotic resistance in bacteria upon water treatment. In 2017, SciLifeLab had an expanded dialogue with pharmaceutical companies, small and medium-sized enterprises and relevant industry organisations to increase SciLifeLab’s accessibility to companies active in the life sciences in Sweden. AstraZeneca continues to be an important strategic partner for SciLifeLab, and since 2012 has financed ten extensive cooperation projects with research teams active in SciLifeLab’s research environment.

The platform for pharmaceutical development provided support to 18 pharmaceutical programmes during the year. Of these, several projects received grants targeted on commercialisation, one project within oncology is actively seeking a commercial partner and one project within Alzheimer’s disease resulted in a newly established company Alzecure Pharma AB.

During the year, a new organisational structure was implemented and documented through necessary agreements and decisions. The definition of SciLifeLab’s steering bodies, various parties’ relationships of responsibility and the formats for collaboration have thereby been clarified. At the beginning of the year, SciLifeLab’s international advisory body also conducted an extensive evaluation of SciLifeLab. The report resulted in a plan for further measures that develop and strengthen the operations at SciLifeLab.

Research platforms

The five research platforms (energy, information and communication technology, materials, life science technology and transport) are connected with KTH’s strategic research areas. They aim to facilitate and stimulate the coordination of inter-school activities and complex and multidisciplinary or interdisciplinary initiatives in the respective research areas. The platforms are also a channel for operational support for greater external funding where, among other things, activities are conducted to increase KTH’s participation in Horizon 2020. Several of the platforms are active in influencing the EU’s upcoming work programmes and framework programmes.

Activities in the form of platform days that address external and/or internal participants have been carried out by all platforms. The possibility of co-financing of the work with large research applications is offered by some platforms as well as help with the financing of new centres in the build-up phase. For example, the transport platform contributed to an application for a new KIC (see below under EIT) within the area of Urban Mobility. The platforms also take extensive responsibility for the relationships with external collaborative partners in terms of research collaboration, both KTH’s strategic partners and other actors.

The year’s version of the energy platform’s conference, the KTH Energy Dialogue, was about how KTH Campus can be used for energy research. In addition, the energy platform and Fortum Värme developed five joint research projects and several degree projects within their partnership.

To increase KTH researchers’ possibilities of finding relevant national and international cooperative partners, the materials platform helped to finance seminars and workshops relevant to materials research.
The platform for life science technology (LST) has worked actively to strengthen the relationships to external cooperative partners regarding research collaboration. A result of the work is that the platform is participating in the launch of MedTechLab, a newly established centre at KTH that is run jointly with Stockholm County Council and Karolinska Institutet. The initiative focuses on strategic research domains with a high clinical relevance and supplements the existing calls for proposals in Health, Medicine and Technology. The first pilot that is being launched in 2018 focuses on technologies for diagnosis and treatment of strokes.

Another initiative that the LST platform conducted together with the platform for information and communication technology in 2017 is FundIT, a web-based search tool especially formulated to search among EU’s calls for proposals within Horizon 2020.

European Institute of Innovation and Technology (EIT) KTH is a main partner in four of EIT’s five Knowledge and Innovation Communities (KIC), in the areas ICT (EIT Digital), energy (EIT InnoEnergy), raw materials (EIT Raw Materials) and health (EIT Health). Digital and InnoEnergy have been under way since 2010 while Raw Materials and Health were established in 2015. In January 2018, there will be new calls for proposal for two KIC where KTH is very active with an application in the area of Urban Mobility.

The involvement in the EIT KICs is strategic for KTH and an important tool to promote the networks of KTH researchers and cooperation with European research teams and industry partners. The networks enable a greater capacity for strong EU applications and a higher degree of financing for KTH. EIT KICs also offer many opportunities to renew KTH’s own core activities in both education and research.

The EIT KICs are operated in close collaboration between academia and industry at a European level and is coordinated through regional nodes. The operational idea builds on a close integration between the three parts of the knowledge triangle of research, education and innovation and has entrepreneurship as a clear overall theme. KTH is one of the parties that has been most active in the EIT KICs ever since the beginning.

Within EIT Digital, the activities are conducted in four sub-programmes: Digital Cities, Digital Industry, Digital Well-being and Digital Infrastructure where KTH had its largest involvement in 2017. The projects have continued to be focused on fewer, larger projects that were closer to the market than before. In business development, KTH’s involvement decreased since focus was moved from early phases to more mature small and medium-sized enterprises. Locally, EIT Digital arranged several events during the year where KTH’s researchers and students received the opportunity to present themselves and make new contacts.

Within EIT InnoEnergy, the number of innovation projects for KTH continued to decrease and the renewal of the projects was weak. In the business development branch, there are several good examples of start-ups that have gone on in their development and gained attention nationally and internationally. As a result of the focus on support for start-ups, the parent company began a process to start a number of European investment funds linked to InnoEnergy. In the next few years, InnoEnergy thereby hopes to even more efficiently be able to support the growth of the start-ups they are involved in and thereby in the long term increase the degree of self-financing in accordance with EIT’s requirements.

EIT Health has now existed for two years and some activities have gotten under way. In 2017, the number of KTH activities increased and KTH is now involved as the coordinator or partner in, among other things, the development of a MOOC course and a summer school, as well as several technical innovation projects. For example, KTH is leading the Clinical Innovation Fellowships Programme that is run in cooperation with KI and SLL and is deemed to be a flagship initiative in EIT Health. During the year, the KTH staff that were ini-

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**Professors 2017**

**Newly appointed professors (externally recruited)**

- Computer science – data science systems
- Industrial production management
- Production logistics
- Software technology
- Technical science education with focus upon education within the subject of engineering

**Direct appointed**

- Computer science – software technology
- Astronautics

**Promoted to professor**

- Discrete mathematics
- Experimental fluid mechanics
- Physics with specialisation in nuclear materials
- Chemical engineering with special emphasis on electrochemical power sources

**Chemical engineering with specialization in industrial electrochemistry**

- Communication networks with emphasis on system security
- Medical protein technology
- Automatic control
- Signal processing
- Structural biology with emphasis on biosynthesis and degradation of plant fibres
- Teletraffic systems
- Urban and regional studies with specialisation urban safety
- Highway engineering

**Newly appointed visiting professors**

- Applied physics
- Urban and regional studies

**Newly appointed adjunct professors**

- Ergonomics
- Road and traffic safety
- Wireless systems engineering

**Source: HR+**
tially involved in EIT Health discontinued their involvement and a number of new people were added. Focus also shifted from life sciences to technology for healthcare. Consequently, the greatest interest is now concentrated to KTH in Flemingsberg. In connection with this generation change, several initiatives were made to strongly increase KTH’s share of EIT Health in the next two years both regarding master’s programmes and projects.

Also in terms of EIT Raw Materials, KTH is currently undergoing a generation change regarding both individuals and projects. When it comes to participation in innovation projects, the situation was stable in 2017, but will increase somewhat in 2018. KTH is, however, still dependent on a few new projects that must be renewed regularly. There is an unused potential for broadening KTH’s participation to more schools than the School of Industrial Engineering and Management, which has been entirely dominant to-date. In terms of programme education, KTH currently has no activities in Raw Materials, but rather only minor development projects and the like. A concrete effort to change this circumstance was begun, which KTH hopes can yield results in 2018.

External changes

Both internationally and nationally, there is greater focus on collaborative research and research focused on addressing major societal challenges. In both cases, it is expected to provide results that can contribute to affecting the surrounding society to a greater extent. The 2016 research bill sheds light on the significance of being better able to handle the major societal challenges that Sweden and the world are facing, and the importance of collaboration to resolve them and get research results to benefit society. Collaborative research, between the university and actors in the surrounding society, between different areas of research and on an international level are emphasised in the government’s new initiatives. The research financiers are also expected to collaborate more in the formulation of programmes and calls for proposals. Through strategic investments in digitalisation, sustainability, internationalisation and equality, KTH has extensive opportunities to further deepen the research based on the efforts made both nationally and internationally.

Research infrastructures

KTH is dependent on access to laborative infrastructure to be able to conduct excellent research and education. In 2017, KTH conducted a development effort that aims to ensure that the research infrastructures that are strategically important to the university’s research and education are provided long-term prerequisites. These will be called KTH Research Infrastructure and criteria were prepared in autumn 2017. The criteria build, among other things, on the infrastructure’s availability and that it is used by multiple research groups, long-term planning regarding organisation, financing, social impact and collaboration. Besides the establishment of a number of KTH Research Infrastructures, KTH intends to use the criteria to support the growth of long-term sustainable research infrastructures from an organisational and economic perspective. By bringing together similar resources under the same organisational unit to a greater extent, both visibility and utilisation increase and resources are freed for support and service.

The same starting point has been a guide for the work of connecting together the electron microscopes in the region through the Centre for Electron Microscopy for Material Sciences that was established in May 2017. Together with KTH, Uppsala University and Swerea KIMAB, Stockholm University has created an organisation with the aim of increasing visibility and utilisation of the instruments, knowledge exchange, improved support and joint courses within and for electron microscopy. KTH also participates in a working group in the European network CESAER to map national and institutional processes and tools linked to the support of research infrastructures. In 2017, in the scope of strategic work for greater use of MAX IV and ESS, KTH was the host of the conference Baltic TRAM, which aimed to increase cooperation between research infrastructures and industry in the Baltic Sea region.

On a national level, the Swedish Research Council’s new model for prioritisation, financing and organisation of national research infrastructure in 2017 meant that KTH participated in nine applications for national research infrastructures, of which eight were granted. Of these, two pertain to responsibility for Swedish participation in experiments at CERN and a third responsibility for National Genomics Infrastructure at SciLifeLab. The other five are in language and speech research, development of fusion reactors, the Ion-technology Centre in the research domain of materials analysis, Biodiversity Atlans Sweden and a national bioinformatics structure. KTH will also, together with other Swedish universities, cooperate within the scope of the Swedish Research Council (VR) approved research infrastructure the Swedish National Data Service (SND).

Export control

During the year, KTH helped researchers with information and review of projects with regard to export control in research projects. The work of developing procedures around export control has also continued. A plan for targeted information scenarios at KTH’s schools is under development. Since 2017, KTH has a certified export control manager.

On the initiative of KTH, a network will be formed where export control administrators from Swedish universities can share experiences and competencies. More than 35 projects
have been subjected to export controls in 2017, which is in line with previous years. During the year, KTH has, for example, received export permission for research projects in Russia.

**Honorary doctor**

In autumn 2017, KTH’s Faculty Council named Börje Ekholm an honorary doctor with the following motivation:

Börje Ekholm is the CEO of Ericsson since 2017. He has held several leading positions in Swedish industry with Board posts in companies, such as Ericsson, Scania and Husqvarna. Börje Ekholm has been internationally involved as the Chairman of Nasdaq and a member of the boards of Alibaba and Trimble. Between the years 1992 and 2015, Börje Ekholm had several senior positions at Investor AB, of which the past ten years as its CEO. For his deeds, he was elected as a member of the Royal Swedish Academy of Engineering Sciences in 2010. Börje Ekholm holds a Master of Science in Engineering from KTH, and an MBA from INSEAD. He has promoted the activities at KTH as a member of KTH’s board in 2008–2010 and as its Chairman in 2010–2017, during a time when KTH worked up several strategic cooperative arrangements with companies and society.
Collaboration

The objective of long-term investment in strategic collaboration is that the efforts should contribute to higher quality and relevance in education and research. KTH has worked since 2011 to establish and develop a systematic approach for collaboration through central support functions consisting of expertise in alumni relations, fund raising, strategic partnerships, collaboration with small and medium-sized enterprises and regional players.

Strategic partnerships

KTH has extensive experience of collaboration with companies, research institutes, authorities, municipalities and county councils. Under KTH’s development plan 2013–2017, KTH has worked on the establishment of strategic partnerships with companies and organisations. There are now partnerships with ABB, Bombardier, Ericsson, Saab, Sandvik, Scania, Skanska, Stockholm County Council, the City of Stockholm, Stora Enso and Vattenfall.

Each partnership is monitored every year by KTH’s management, together with operational management at the respective partner. The work is led by the Deputy President. The university administration assists with partner managers for the respective partnerships.

Personal mobility

An important part of KTH’s strategic collaboration takes the form of personal mobility between academia and the community. Common forms of personal mobility are through adjunct professors, affiliated faculty, teachers, researchers and doctoral students. In recent years, KTH has actively worked to make it easier for people and personnel categories that move between KTH and the rest of the world. For example, the Professional Licentiate of Engineering (PLEng) can be mentioned, see the section on Education.

At the end of 2017, there were 55 adjunct professors, 9 women and 46 men (2016: 63, 9 women and 54 men). The number of persons in the affiliated faculty category is 34, 8 women and 26 men (2016: 28, 7 women and 22 men).

At KTH, there are also affiliated professors. The intention of them is mainly to strengthen KTH’s international contact network by affiliating well-renowned foreign research colleagues with KTH. There are 20 affiliated professors, 3 women and 17 men. These are not employees of KTH and so are not included in the staff summary in the annual report.

Work for a greater impact of KTH’s research and education in the surrounding world

The work to strengthen, capture and communicate KTH’s social impact continued during the year. Impact managers at KTH’s schools have been the core of this work, coordinated by the KTH Industry Collaboration with support of a central project group. Impact managers have had regular joint meetings for experiential exchange.

Development projects on strategic collaboration

In 2017, Vinnova allocated funding for development projects concerning strategic collaboration and in total SEK 100 million will be awarded over three years. At the end of 2017, 13 projects were begun, of which KTH is involved in eight. KTH leads one of the projects, Methods for relevance assessment of programmes (MERUT), in which Stockholm University, Umeå University, Linköping University, Karolinska Institutet (KI), Mälardalen University and Kristianstad University are involved.

Regional initiatives

During the year, Digital Demo Stockholm continued to be developed. Digital Demo Stockholm is a collaboration where KTH is involved together with Ericsson, City of Stockholm, ABB, Scania, Skanska, Vattenfall and Stockholm County Council (SLL). The objective of Digital Demo Stockholm is to secure an inclusive and sustainable Stockholm where new information technology is integrated. The collaboration is based on the needs and challenges of the Stockholm region. Digital Demo Stockholm is intended to help 1) strengthen Stockholm’s attractiveness and so attract people and companies to the region, 2) develop and demonstrate the opportunities that exist in digital technology and study the consequences of the connected society for citizens and the city and 3) enable inter-industry system solutions for Stockholm’s needs to increase the region’s attraction. KTH researchers participate in several of these projects.

SLL, Karolinska Institutet (KI) and KTH have taken the initiative during the year for a new education and research endeavour within medical technology, MedTechLabs. The centre will be organised at KTH and gradually geographically established in BioClinicum at Karolinska University Hospital. There, researchers from KI and KTH will jointly develop technologies and methods that can then come out in healthcare services. The first project that begins in 2018 will develop technology that is to help patients with, for example, stroke to get better diagnosis and treatment.

OpenLab is a challenge-driven innovation environment for collaboration between bodies such as the City of Stockholm, Stockholm County Council, County Administrative Board of Stockholm, Karolinska Institutet, Stockholm University, Södertörn University and KTH. During the year, activities have been developed to comprise, besides interdisciplinary master’s courses, contract education, workshops and other activities where various actors meet to prepare proposals on the challenges faced by the region under new formats and methods. OpenLab participated in international
Collaboration with small and medium-sized companies

According to KTH’s development plan 2013-2017, collaboration with small companies shall be developed. KTH’s strategy for collaboration with SMEs means that KTH will make contact with several small companies and be able to contribute knowledge to meet the development needs and challenges of SMEs. This form of cooperation is emphasised in the EU framework programme Horizon 2020, which means that good relations and collaboration with small and medium-sized companies are necessary for KTH to remain successful in obtaining research funds in competition with other European organisations. Today, there is a developed collaboration with IVL Swedish Environmental Research Institute and Stockholm Cleantech.

The Green Home project is in its second year and has the aim of strengthening the collaboration structures in housing construction in the Stockholm region and at the same time create better conditions and possibilities for SMEs to contribute innovative, environmentally friendly products and services to these collaborations.

KTH provides a digital platform, the KTH Degree Project Portal, with the aim of making it possible for KTH’s students and employers to make contact with each other. There, companies, organisations, institutes and institutions can at no charge post suggestions of degree projects, project assignments, trainee positions, placement positions and extra and seasonal jobs aimed at students. In 2017, more than 1,000 student assignments were posted of which around 800 degree projects.

Contract education and continuing professional development

KTH offer a number of continuing professional development courses in the government funded activities. During the year, KTH also provided specially designed contract education. Courses are provided in various areas with the aim of broadening or deepening expertise, primarily for professionally active engineers and architects. Courses are also offered for teachers in need of skills development.

The number of FTEs in KTH’s continuing professional development amounted to 129 (149) in 2017. The number of annual performance equivalents amounted to 82 (94).

The number of FTEs in credited contract education amounted to 43 (42) in 2017. The number of annual performance equivalents amounted to 45 (53). 498 people participated in the contract education courses. The revenues for the contract education totalled SEK 11 million compared with SEK 13 million in 2016. The courses that had the most participants are in the property area, as well as the government’s Teacher Improvement effort.

Alumni relations and KTH Opportunities

KTH Alumni create meeting places for continued exchange between alumni, students and faculty. This activity is intended to show the impact KTH’s former students have on business and society, develop collaboration so as to create added value for today’s students and facilitate the alumni’s continuing commitment. The network of KTH alumni currently consists of approximately 82,000 (78,000) individuals, of whom one fourth are outside Sweden.

During the year, one alumni association was formed in the UK and one in Silicon Valley in the U.S.

Some 50 meetings and events were arranged in Sweden and internationally. In Stockholm, San Francisco and Barcelona, seminar marathons were held in connection with the KTH Campus 100-year celebrations. Professor Max Tegmark, physicist and cosmologist, visited KTH in November and some 480 alumni attended the lecture.

Alumni commitment for KTH and its students is gathered in the scope of KTH Opportunities. This includes mentorship, guest lectures, advice and feedback, international leadership and financial donations. KTH alumni are involved in several ways during various phases in life. They help prospective students navigate recruitment fairs and encourage them to choose KTH. Alumni seek direct contact with students and
work to establish career networks with other KTH alumni. During the year, around 300 alumni and organisations offered their time and donated financially, which is in line with the previous year, and 12 student projects could be granted funding from the fund.

An extensive questionnaire survey targeted at alumni was conducted during the year, which confirmed the extensive interest in continued contact with KTH among this group, and the desire to contribute to e.g. degree projects or as visiting lecturers. The individual interviews that followed up the questionnaire form the basis of an event platform that will be launched in 2018.

Innovation Office

In the 2008 government research bill, KTH was appointed among others to start a so-called innovation office. The work in the innovation office is led by the department KTH Innovation within the university administration.

Since the beginning of the Innovation office, KTH has had a very close cooperation with other universities in the region and especially with Mälardalen University, the Stockholm School of Economics and the Swedish School of Sport and Health Sciences. With these universities, KTH has collaboration agreements since 2016 regarding the provisioning of services for innovation development and the transfer of funding to build up own innovation support. Services in innovation development include support and advice in business development, financing, patents and recruitment. Each of the three universities together with KTH has prepared an action plan for activities and efforts that aim to strengthen innovation support locally. KTH has also opened its innovation supporting activities to some 20 individual researchers and students at the three universities. A collaboration agreement was also signed with the Royal College of Music, but as no funding was obtained to develop the cooperation more concretely in 2017 only informal contacts were made. Since the beginning, the Innovation Office has also had close cooperation with Uppsala University in patent support and actively participated in other experiential exchange with other innovation offices.

One major effort in the scope of the cooperation was Brainathon 2017, a hackathon with challenges around how brain health can be promoted with the help of physical activity at workplaces and among the most vulnerable in society. More than 60 participants from all four universities, representatives from industry, researchers, entrepreneurs and authorities worked during a whole day in mixed groups and found many interesting solutions to the challenges.

In 2017, a joint development effort by all of Sweden’s innovation offices was begun. The work is being financed by Vinnova and is conducted with peer review methodology.

Innovation-supporting activities

KTH Innovation works to ensure that research results and business ideas from researchers and students at KTH are developed and reach the market.

The overall objectives for KTH Innovation are to:

- Increase the number of ideas and results from KTH’s researchers and students that hit the market and become successful innovations
- Ensure an effective support process, in an international perspective, (with the right networks and conditions) to support the ideas’ path to the market in the best possible way
- Enable the creation of a strong, supplementary ecosystem for innovation support of internationally top class at KTH

The strategy for 2017 has been to maintain high inflow of ideas, while resources have been given to activities so as to achieve a qualitative and quantitative increase in the outflow.

Extra efforts were made to increase the idea inflow in the long term through ideation workshops, for example. Providing education on how ideas arise, how to know that one has an idea and how to get more good ideas has become an important part of KTH Innovation’s work to increase the number of innovations from KTH. These efforts were especially popular among women.

In 2017, KTH Innovation completed a project that aimed to increase the number of women who receive innovation support at KTH. The project’s experiences, insights and approaches will now be incorporated in the strategic and operational work at KTH Innovation, and also be made available to other innovation offices. KTH Innovation has expert competency in process-oriented innovation development. During the year, the interest from the surrounding world was extensive and discussions were conducted with several Swedish and international companies and universities.

Stockholm has a very attractive ecosystem for entrepreneurship and start-ups with alternative opportunities for classic incubation.

In 2017, KTH Innovation received 287 new ideas, relatively evenly divided between researchers and students. The commercialisation project supported by KTH Innovation has altogether received approximately SEK 40 million in financing, including from the Vinnova-financed Validation for Application (VFT) programme handled by KTH Holding AB at KTH (also see below). During the year, 33 companies were formed, including 18 student companies, and 28 commercial agreements were signed with customers based on KTH research, 60 patent applications were submitted and 25 patents were granted. During the year, six companies were included in the STING business incubator and three in other Swedish incubators. 32 projects were accepted for pre-incubation at KTH Innovation.
In addition to these efforts, a number of inter-partnership activities have been performed. Examples of these include the exchange of information and the programme Brighter Startup 2017 conducted in Silicon Valley, a tailor-made development programme for those with ideas that are judged to have global potential. The programme is open to ideas that emerge from all parties in the innovation offices with the aim of increasing participants’ knowledge of entrepreneurship in an international context. In 2017, the conditions were investigated to broaden the Brighter programme to more markets, such as Germany and the U.S. east coast.

In 2016, Bicky Chakraborty, entrepreneur and owner of Elite Hotels, donated SEK 5 million to KTH to strengthen the entrepreneurial mind set among students and researchers at the university. The first round of the Bicky Chakraborty Entrepreneur Programme, which focuses on highlighting entrepreneurs with ideas focused on growth in Sweden, was concluded in autumn 2017. A new round was begun in November 2017 with seven entrepreneurs who over one year will be offered financing, coaching, tailor-made courses and mentorship.

The annual Global Change Award, initiated by H&M Foundation, aims to stimulate the shift from a linear to a circular fashion industry. Besides a financial grant, the winners can participate in a year-long accelerator programme where KTH is a partner and where KTH Innovation contributes a one-week boot camp in Stockholm, among other things.
Quality work

Quality policy and the starting point for KTH’s quality assurance work

The KTH quality policy comprises the areas of education, research, competence supply and collaboration. During the year, the quality assurance work was extensively focused on developing KTH’s long-term and systematic quality assurance of education, research and collaboration. The work proceeded based on analyses by KTH’s existing quality assurance work and was guided by national requirements and European guidelines for quality assurance of higher education and by KTH’s locally prioritised goals.

In KTH’s quality assurance work, it is of major importance that students, teachers and employees are included and engaged. At the same time, there is a clear formal division of responsibilities and an administrative support organisation are in place for quality activities. The Faculty Council, headed by the Dean, is the collegiate body with overall responsibility for the quality of education, research and collaboration. At each school there is a member of the faculty in charge of education at first and second cycle, called Director of First and Second Cycle Education, and one responsible for third cycle studies called Director of Third Cycle Education. Each education programme has a Programme Director.

KTH works strategically with education and quality seminars directed at KTH’s personnel. In 2017, six seminars addressed various topics, such as language and accessibility, internationalisation and collaboration, inclusive research environments, educational development and a focus on the individual student and development of KTH’s quality assurance system and collegial involvement in the quality assurance work.

The quality assurance work done in 2017 is largely described under each area of activities below. However, the Faculty Council’s and the Student Union’s role in the quality assurance work is described first, as well as the development of KTH’s quality assurance system.

Faculty Council’s role in the quality assurance work

The Faculty Council is an advisory body to the President and has overall responsibility for the quality of KTH’s education, research and collaboration, and for the quality of recruitment and promotion processes for teacher appointments. The Council has the overall responsibility for the collegial support at KTH. The Faculty Council consists of 13 members of whom seven are teachers appointed through elections in the faculty, three are external members appointed by the President and three are representatives for the students appointed by the KTH Student Union (THS).

During the year, several current quality issues were discussed in the Faculty Council which then led to continued preparation and activities in the faculty staff and other parts of the operations. Among other things, national requirements and European guidelines for quality assurance of higher education were discussed in connection with the preparation of the basic principles for KTH’s quality assurance system. Based on these basic principles, the Faculty Council assigned the Education Committee to prepare instructions for regular review of education at all levels.

Another important and overall discussion addressed ethical issues, which resulted in reading guidelines and explanatory comments to clarify the ethical policy. In addition, an investigation was conducted concerning researcher and teacher appointments outside a tenure track. An important effort was begun regarding the development and clarification of steering documents in this area.

As a part of the continuous follow-up, the Dean and the Vice Dean conducted quality dialogues during the spring with the management of all of KTH’s schools where the schools’ quality assurance work in education, research, skills provisioning and collaboration was followed up.

The Resource Allocation Committee, which the Faculty Council appointed in 2016 and assigned to follow-up and propose changes to current resource allocation systems, continued its work. In order for KTH to continue to be able to compete for the most competent teachers and researchers, the faculty’s financing terms need to be strengthened and the resource distribution systems strengthened. In the short term, this situation presupposes that the preparation of new faculty appointments is always preceded by a careful analysis of long-term financing conditions through the basic government funding. In 2017, the Resource Allocation Committee held six meetings. At these meetings, the schools’ internal allocation models were analysed and discussed.

At the end of 2017, the Faculty Council began work to review KTH’s quality assurance policy and the Dean appointed a working group for the task. The purpose of the review is for the quality assurance policy shall reflect KTH’s new development plan 2018–2023 and more clearly reflect national requirements and European guidelines for quality assurance of higher education.

Student influence and the Student Union’s quality assurance work

THS continues to have the position as the student union at all of KTH until 30 Jun 2019. KTH and THS have long had collaboration where KTH’s students, through THS, are represented in all decision-making bodies and in virtually all preparatory groups and work groups. Noteworthy here are the University Board, the Faculty Council, the President’s Strategic Council, the President’s Management Council, the President’s decision and information meeting, the Education Committee, the Appointment Committee, the Disciplinary
Board, the schools’ Strategic Councils, Recruitment Committees and work groups for various investigations. KTH’s experience is that THS chooses students who represent various parts of KTH and also, to the furthest possible extent, reflect social, ethnic and cultural diversity.

In 2017, THS assigned particular importance to the reception of new students, conditions for international students, work on equality, diversity and equal opportunity and student completion in the studies. THS representatives are also very active and a major resource in the work of developing KTH’s quality assurance system.

Development of KTH’s quality assurance system
During the year, KTH worked to develop and implement new parts in the university’s system for quality assurance of education at all levels. This work is based on the two investigations that the Education Committee conducted in 2016 regarding continuous follow-up and regular review of first-, second- and third-cycle education, and in national requirements and European guidelines for quality assurance of higher education.

KTH’s quality assurance system shall consist of continuous follow-up and regular review and comprise education, research and collaboration. The quality assurance of collaboration shall be integrated into the quality assurance of education and research.

The Faculty Council and the Education Committee have discussed the basic principles for continuous follow-up and regular review and prepared proposals for the President’s decision. An input report was prepared that presents and motivates these basic principles. An important basic principle is that the respective school shall be responsible for regular review of all of the school’s programmes in accordance with the instructions the Faculty Council decides on. Other important basic principles are that the reviews shall be carried out by collegial review groups and take place in six-year cycles so that all programmes undergo a collegial review every six years. Continuous follow-up and regular review of programmes shall also comprise the collaboration that the programme has with working life and the surrounding society.

A working group from the Education Committee was appointed to prepare proposals on the instructions that shall apply to regular review. The Faculty Council shall decide on these instructions in August 2018.

An effort to develop a quality assurance system for research has been initiated by the Faculty Council and a steering committee consisting of the Dean, Deputy President, Vice President for Research and the University Director was appointed to lead the work. In October, the Faculty Council conducted a study trip to London with visits to the Russell Group, Higher Education Funding Council for England, University College London and Queen Mary University London to gather knowledge and exchange experiences within continuous and strategic quality work regarding research.

Quality work within education
The quality assurance of education at all levels was developed during the year by the President introducing a special quality dialogue where the follow-up of education at all levels is a central component. Templates for programme analysis were prepared, with questions the analysis will answer. One section of the analysis was linked to the quality aspects that the national quality assurance system encompasses. Besides providing a basis for the follow-up and development of the programmes, the purpose of the programme analysis is also to prepare the basis for the self-evaluation that will be done at the regular review every six years.

Another important prerequisite for the quality and quality assurance work in education is the Faculty Council’s work with new descriptions of responsibility, authority and competence for the schools’ Directors of First and Second Cycle Education, Directors of Third Cycle Education and Programme Directors. This work led further to the Vice Dean of Faculty being assigned to clarify duties for the Directors of First and Second Cycle Education, Directors of Third Cycle Education and Programme Directors.

A working group prepared proposals of a new structure for course information at KTH. In connection with the Faculty Council establishing the proposal, the Dean was assigned to prepare, in consultation with the working group for ethical instructions, proposals of a standard text for the ethical approach that shall be included in the course syllabus.

The review of the doctoral subject study plans that was begun in 2016 continued in 2017. A working group prepared proposals on a template for a general study plan for third-cycle subjects and a template for programme description for doctoral programmes. The work of updating and revising the subject study plans aims to provide clearer study plans and greater knowledge of the qualitative targets and how the education should support the individual doctoral student in achieving the targets. The Faculty Council has decided to establish the proposed templates and that all study plans for subjects and all third-cycle programme descriptions are to be revised in accordance with the new templates.

During the year, KTH underwent the Higher Education Authority’s national thematic evaluation of Swedish university integration of sustainable development in their programmes. KTH was approved on all aspects and deemed to have a well-developed process for the work with sustainable development in education.

Three subjects in third-cycle education were also evalu-
ated during the year. The Higher Education Authority is expected to present the results in early 2018.

Educational development

The endeavour regarding educational developers that was under way from 2014 to 2016 was a driver of quality. Ideas and recommendations from this endeavour have become a natural part of the quality work. A proposal on objective-related grading criteria was tested by a number of programmes at KTH and in 2017, it was decided to introduce objective-related grading criteria.

During the year, KTH decided on a new development plan that states that a clear incentive structure is to be introduced to clarify the importance of pedagogy and encourage an excellent educational environment. The Faculty Council also decided to develop a teaching qualification system in 2018. All teachers shall have higher education teaching competence. Competence development for teachers also means in-depth subject study and relevant working life contact.

During the year, pedagogical development was also highlighted in the operational plan approved for 2018. The schools shall work actively to strengthen the teachers’ higher education teaching competence by identifying the employees’ individual educational needs and plan for educational efforts. The offering of higher education teaching courses is to be reviewed with a particular focus on teaching for equality and sustainable development, and the course’s availability.

Organisational structure of education

In September, the President decided on a reorganisation of KTH’s schools, which means that the previous ten schools are becoming five in 2018. The aim is to streamline and strengthen the quality of KTH’s operations. Among other things, the decision means that the School of Biotechnology (BIo), the School of Chemical Sciences (CHE) and the School of Technology and Health (STH) will be integrated into one school, the School of Chemistry, Biotechnology and Health (CBH). The School of Computer Science and Communication (CSC), the School of Electrical Engineering (EES) and the School of Information and Communication Technology (ICT) will be integrated into one school, the School of Electrical Engineering and Computer Science (EECS).

In connection with the merger to the EECS school, a working group was appointed and tasked to review the school’s educational offering. The working group will propose a structure for the school’s programmes in an education portfolio in 2025 that meets society’s needs, provides the students an opportunity to acquire broad expertise in the school’s subject areas and clarify the connection between the faculty’s subject competence and the content in the school’s programmes. The working group will also propose measures that aim to streamline the current programme and course offering with overlapping content and improve their quality by using modern pedagogical and didactic methods. The CBH school was given an equivalent assignment.

An effort to revise and develop rules and instructions for the establishment of education was also under way in 2017.

E-learning

As a part of increasing quality in e-learning, KTH continued the work on the new learning platform implemented in 2016. KTH also continued the development work around MOOCs. To further strengthen the work on digitalisation, the Present appointed a Vice President with special responsibility for investigating KTH’s situation regarding digitalisation of education, research and collaboration. This includes conducting a surrounding world analysis and benchmarking, preparing recommendations regarding digitalisation for the positioning of KTH and to prepare a strategy for digitalisation at KTH.

Teaching in higher education

KTH works with credited higher education teaching courses that are given to KTH’s teaching teachers, researchers and doctoral students. The higher education teaching activities strive to follow newly adopted recommendations from the Association of Swedish Higher Education (SUHF) and work to benefit a quality-driven development of KTH’s current and future educational forms and environments. In 2017, both first-cycle courses and second-cycle courses were provided within the higher education teaching area with a total of 394 (408) registered participants (teachers and doctoral students), including 118 (131) women and 276 (277) men.

The Council for Higher Education Teaching Activities was formed in 2016 and held three meetings in 2017. The following areas received special attention during the year: SUHF’s in-depth report on training in higher education teaching in Sweden, development of the first-cycle course “Learning and teaching” (7.5 credits), development of the course “Leading educational development” (3 credits), initiation of strategic support for KTH’s internationalisation work through contract education in higher education teaching to strategically selected countries/universities and an initiative in the Stockholm and Uppsala region to collaborate to develop a course in gender and norm-critical pedagogy.

Within the higher education teaching work, monthly meetings for programme directors and pedagogical developers were arranged. The meetings contributed support in the development of MOOCs, the integration of the learning platform Canvas and for the development of the course analysis system. They also contributed to several investigations and other development efforts. At year-end, a network was formed for directors of studies.

Questionnaire follow-up of students and doctoral students

KTH regularly conducts surveys of students and doctoral students in the respective starting survey, intermediate year survey, career survey and doctoral student follow-up.
The surveys are included in KTH’s quality assurance system and their regular implementation makes it possible to follow the development over time. The results can be analysed broken down by gender, Swedish/non-Swedish citizens and parents’ educational background and are presented in tables (overall, programme type, programme and school) and in an overall report. The results can therefore be used in the quality work at various levels in the operations.

During 2017, KTH conducted a doctoral student questionnaire that followed up former doctoral students. It was conducted in cooperation with Statistics Sweden and comprises doctoral students admitted to doctoral studies in 2007-2011. The purpose of the follow-up was to investigate KTH’s doctoral education regarding how well former doctoral students established themselves in the labour market, what duties they perform in their daily work, what employers they have and how they assess their doctoral studies when they look back based on their experiences after the studies.

The results show that an absolute majority (90 per cent) of those who responded are established in the labour market and have obtained relevant and qualified duties. They generally perceived the research environment as stimulating and supportive. They are also satisfied with the supervision they received in terms of content and quality, but would like more supervision regarding a future career. The results also show that the former doctoral students believe that the doctoral studies have given them good knowledge in theory and methodology, in-depth subject knowledge, critical thinking and an ability to independently conduct research. They were more critical to the elements and also the lack of elements concerning entrepreneurship, leadership, the possibility of financial assessments and the weak connection to business/industry during the studies. The results show that the former doctoral students are generally satisfied with their doctoral studies and their time at KTH. Men are slightly more satisfied than women, which is something for KTH to investigate further. A clear majority of those who responded would choose to do their doctoral studies at KTH again.

In 2017, work was done to prepare a larger section in KTH’s employee survey that addresses all current doctoral students. The aim of this work is to get more information on the doctoral students’ working environment and how they perceive their doctoral studies.

Quality assurance work in research

KTH has a high percentage of externally financed research and in 2017 demonstrated continued strong competitiveness nationally and internationally. KTH is at the top among Swedish universities that had the most projects granted by EU Horizon 2020. Prior to the launch of the new work programmes, a one-week workshop was held for KTH’s researchers with a focus on strengthening the research areas. In 2017, work began to update KTH’s guidelines for centres, development of approaches in communications for centres, training of centre/collaboration directors and a review of the internal working processes.

KTH is dependent on access to research infrastructure to be able to conduct excellent research. In 2017, a development effort was conducted that aims to ensure that the research infrastructures that are strategically important to the university’s research and education are provided long-term prerequisites.

The five research platforms, which tie into KTH’s strategic research domains, were all active during 2017 in the form of platform days targeted at both internal and external participants. The possibility of co-financing of the work with large research applications is offered by some platforms as well as help with the financing of new centres in the build-up phase. Two of the platforms took the initiative for a web-based search tool designed to search among EU Horizon 2020 calls for proposals. A prototype of the tool is now available.

Quality assurance work in competence supply

At the beginning of 2017, the Dean appointed a working group to investigate teacher and researcher appointments outside tenure tracks, in part with the aim of better including lecturers and researchers. The working group prepared ten proposals to develop the content and improve the conditions and procedures within competence provisioning plans, staffing plans and the appointments procedure for teachers and researchers. The proposals were discussed in the Faculty Council that supported the working group’s proposals. The proposals will be worked into all steering documents concerning competence provisioning.

Quality assurance work in collaboration

In 2017, KTH continued the development work in the impact on industry and society. The function of impact manager at KTH’s schools was the core of these efforts. The work received support from a project group with representatives from central operational support with a coordinator. Prioritised activities linked to previously developed school-specific strategies were implemented at the schools. Guidelines for Impact Cases were completed. In 2017, KTH’s leadership decided that impact responsibility will continue to be a part of the schools’ assignments.

In 2017, KTH was the initiator of Knowledge Exchange and Learning regarding Strategic Collaboration (klossnet), which is a national leadership network for strategic collaboration. All universities in Sweden are included in the network. Kloßnet entails opportunities for capacity expansion and quality work in the area of collaboration.

During the year, KTH was active in the mobilisation of national operational development projects in the collaboration area, which is supported by Vinnova. In total, 15 projects

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are approved where KTH is involved in eight and is leading one. In the projects, between six and 19 Swedish universities participate. Several of the projects that KTH is participating in have a direct bearing on quality development, such as the project Collaboration-integrated Quality Assurance System for Greater Utilisation (SKÖN), which is being led by Linköping University. The project that KTH is leading, Methods for Relevance Assessment of Educational Programmes (MERUT), also aims to develop this component in quality assurance systems.

KTH collaborates with strategic partners to strengthen the quality of education and research. The strategic partnerships contribute to more and better contact between education, research and society. The partnerships are followed up through management dialogues every year.

To create conditions for greater quality in relationships with the surrounding world and alumni, a new Customer Relationship Management (CRM) system was implemented in 2017.

Through alumni, KTH receives regular support and feedback to the activities. They also contribute a national and growing international network. To strengthen and develop the relationship with KTH’s alumni, work has begun that aims to increase the understanding of how alumni want to get involved and contribute to KTH’s education and research. An example of what alumni contribute to strengthen KTH’s internationalisation is that exchange students are given the opportunity to be matched with local mentors.

Seven open lectures were held during the year. The aim is to create a dynamic meeting arena where the public can partake of the information and discuss current research with KTH’s teachers and researchers. The open lectures held during 2017 cover many different research subjects at KTH under the following headings: Nanotechnology – a revolution on a small scale, Architecture - ambiguities and the technical shift, Healthcare and technology, Click chemistry, KTH Campus – 100 years of development, Sharing economy – in a sustainable direction? and How can we design the materials of tomorrow?

In 2017, KTH performed well overall, even if its ranking dropped. In the QS World University Rankings, KTH dropped from a ranking of 97 to 98. KTH’s international reputation, both among employers and academicians, remains strong. In the THE World University Rankings, KTH dropped from a ranking of 159 to 173. KTH has roughly the same rankings as before, with only minor adjustments in terms of the figures for the various indicators, at the same time that other universities advanced their positions. It is noteworthy that KTH declined in terms of the citation rate.

KTH continued to perform well in subject area and subject rankings. In THE’s subject area ranking for engineering and technology, KTH was ranked as the 38th best university in the world, which is a drop of two places since 2016. In the corresponding QS ranking, the university was ranked as the 29th best, which is an improvement. In the QS subject ranking, KTH is represented with 14 subjects, of which five are among the top 50. Architecture was ranked highest with a ranking of 23rd, followed by electrical engineering at 26th place.

KTH’s foremost strengths in this kind of evaluation are a very high production of publications per teacher and researcher and a very high percentage of joint publication with researchers from other international universities and with industry. KTH has a high percentage of international researchers, teachers and students. The university also has a high percentage of revenues from industry and is successful in obtaining research funding from other external financiers. KTH is relatively strong in reputation ratings and performs better than other Nordic technical universities.

KTH’s reputation is stronger than what the university achieved in the bibliometric indicators. KTH’s weakness is the ratings in indicators that measure the research’s impact and excellence. This is shown as the relatively low field-normative citation rate, where KTH is only ranked 364 according to the THE World University Rankings, and indicates a weakly declining trend. As to the proportion of publications among the 10 per cent most cited within the same subject area, there is an improvement potential. In addition, KTH has relatively few highly cited researchers and relatively few articles in High Impact Journals.
Environment and sustainable development

The global challenges that society is facing are extensive and sustainability will be an important driver of technical development for many decades to come. As a technical university, KTH plays a key role and has a responsibility in terms of sustainable development. The ambition expressed in KTH’s development plan for 2013–2017 is that KTH shall be one of Europe’s leading technical universities in the environment and sustainable development and have an identity and a brand name that is associated with sustainable development. KTH has many extensive possibilities to influence the development of society in a positive direction and to contribute to the UN Global Sustainability Goals by educating, conducting research and collaborating with the surrounding society and by reducing the environmental impact from KTH’s own activities.

KTH’s programmes provide the next generation’s leaders with knowledge and expertise that are needed to address future challenges. KTH therefore has extensive possibilities to affect the development in a positive direction with new knowledge. To be able to contribute to a sustainable society, it is also important that the research that KTH conducts reaches out and is translated into practice. KTH therefore places great importance on the collaboration with important social actors and in highlighting new research results.

In 2017, a new development plan for KTH for 2018–2023 was prepared where sustainable development, equality and internationalisation are focus areas.

Organisation

KTH’s strategic work with the environment and sustainable development is conducted in the KTH Sustainability Office in the university administration. The Vice President for Sustainable Development is responsible for the integration of sustainable development into education, research and collaboration in accordance with a plan for 2016–2018. This sustainability manager is responsible for the Sustainability Office and the university’s internal environmental efforts and indirect environmental impact within the scope of the environmental management system. This work is conducted based on KTH’s policy for sustainable development and overall sustainability objectives for 2016–2020. Within the KTH Sustainability Office, there are employees who work to support the schools’ and administration’s work to achieve the sustainability goals in education, research, collaboration, in campus-related issues and in the work to maintain and develop KTH’s environmental management system. An internal newsletter was sent out around once a month.

As a support for the Vice President for Sustainable Development, and as support in the school’s work on integration of sustainability, there is an academic reference group for sustainable development. The group consists of one researcher or teacher representative from the respective school, one representative from the Faculty Council, two student representatives, the sustainability manager, employees at the KTH Sustainability Office and possibly other people from the operations that are co-opted as necessary.

All schools and in the university administration have environmental representatives who together with the school’s management conduct the environmental management work, in many cases together with local environmental groups/councils. In addition to this, there are a number of educated internal environmental auditors.

Environmental management system

KTH’s environmental management system has been certified since 2015 according to the international environmental management system ISO 14001 and follows the requirements in the Ordinance (2009:907) on Environmental Management in Government Authorities. In 2017, an external environmental audit was conducted that showed that the system works well and is under development. KTH has prepared overall sustainability objectives and all ten schools and the university administration also have their own detailed objectives that are in line with the overall objectives. For every objective, there is an action programme with activities to achieve the objectives.

The overall sustainability objectives 2016–2020 comprise ten areas:

- education
- research
- collaboration
- work environment (not followed up in the environmental management system)
- KTH’s campus (energy, construction, renovation, outdoor environment, transports, waste)
- travel
- procurement and purchasing
- chemicals management
- investments of foundation and donation capital
- organisation and management

In 2017, the work on the transition to the new standard ISO 14001:2015 continued according to plan. The internal environmental audit focused on the measures that need to be implemented prior to recertification of the environmental management system that will take place in April 2018. The audit’s focus areas were leadership, surrounding world and stakeholder analysis, risks and opportunities and the work...
on the integration of the environmental management system in the operating processes. The work on the transition to the new standard ISO 14001:2015 will continue in 2018.

**Staff training**

Various forms of environmental and sustainability training were carried out during the year, such as within the scope of the introduction of new employees and KTH’s management and leadership training. The web-based introduction regarding sustainable development has been updated and remains a part of the introduction for new employees. More specific courses were also held in internal environmental audit and environmental management systems.

The teaching course “Learning for sustainable development”, with the aim of helping teachers integrate issues of sustainable development into instruction based on their own subject, has continued to be given during the year.

**Education**

The work is continuing to integrate sustainability issues in all educational programmes at KTH. Many training programmes have made considerable success in the integration of sustainable development. Previously, action programmes for first- and second-cycle programmes were prepared. In 2017, action programmes for the schools’ doctoral programmes were established.

Work regarding the integration of sustainable development within the doctoral studies, resulted during the year in the KTH Sustainability Office deciding to support the development of two third-cycle courses. A workshop was arranged for KTH’s teachers about the web platform for an introduction to sustainable development that was developed in cooperation between KTH and the company Snowflake. During the year, the KTH Sustainability Office also supported the work to integrate the web platform with the Canvas learning platform, which will increase usability of the tool.

During the spring, the KTH Sustainability Office also contributed to the students trying a test on sustainability issues, Sulitest.

In October, the results were published from the thematic evaluation that the Higher Education Authority did during the year with regard to what the work on sustainable development in education looks like at universities. The assessment was that KTH has well-developed processes for the work with sustainable development in education. Therefore, the KTH Sustainability Office arranged an event with a panel discussion and mixer on the topic of KTH’s education programmes and the integration of sustainable development. A seminar/workshop was arranged with the Directors of Third Cycle Education and Programme Directors to discuss the work of establishing an action programme for the doctoral programmes.

**Research**

Through networking, and some support in completing applications, the KTH Sustainability Office supports large applications within the sustainability area. Since 2012, an annual internal call for proposals has been made, Environment and Sustainable Development across Disciplines, granting funding (up to SEK 100,000) for interdisciplinary initiatives in research, education and collaboration. Eight initiatives received support during the year, of which several have ties to KTH’s sustainability objectives for the KTH campus.

In 2017, two large KTH-led research programmes were awarded funding from Mistra: Mistra Sustainable Consumption – from Niche to Mainstream, regarding sustainable consumption and Mistra TerraClean, on new materials for purification of water and air. Mistra Sustainable Consumption had previously received support through the call for proposals in Environment and Sustainable Development across Disciplines to form consortia and prepare the application.

The strategic innovation programme Viable Cities, which is led from KTH, also began during the year, and this also received funding in earlier years for writing the innovation agenda that the programme is based on.

During the year, the agency capital was used for the start of the KTH Water Centre, a platform for innovation and interdisciplinary cooperation on water research at KTH. In addition, a research-initiated tool on air research began, the Clean Air Network, to which researchers outside KTH were also invited.

**Collaboration**

During the year, KTH Sustainability Office arranged seminars and other meeting places for teachers, researchers and students. A matching meeting was arranged for cooperative partners, companies and organisations with KTH’s teachers. The objective of the meeting was to prepare degree project proposals, project assignments and guest lectures with ties to sustainable development in the educational programme.

The annual KTH Sustainability Research Day was attended by more than 200 participants. The day consisted of dialogues between researchers and stakeholders on circular economy, smart bio-based materials and sustainable urban development, as well as talks with researchers and representatives from business and authorities on how the UN’s global goals can be realised and what role KTH has in this development.

During the year, the KTH Sustainability Office partially financed a number of projects that were intended to encourage more collaboration within KTH, in both education and research.

KTH’s partnership agreement, focusing on the environment and sustainable development, with the IVL Swedish Environmental Research Institute, Stockholm Environment Institute and Akademiska Hus has continued and been further developed. The follow-up of these collaborative agreements shows
that collaboration takes place in several parts of KTH in both research and education.

KTH’s involvement in international networks in the environment and sustainable development has continued and developed. KTH is now one of seven co-hosts in the International Sustainable Campus Network (ISCN) and among other things has a representative on the Board. KTH also participates in the UN Sustainable Development Solutions Network (SDSN) Northern Europe and in the Nordic University Administrator Cooperation (NUAS), as well as the UN 10-year framework programme for sustainable consumption and production with a focus on procurements (10YFP).

On a national level, KTH participates in the network for universities’ work with environmental management systems, the network for sustainable business and the network for a fossil-free Sweden.

The external newsletter, which is aimed at business, decision makers, the authorities and organisations, has been issued four times during the year. Information and compilation of calls for research proposals in the environment and sustainable development have also been sent out to doctoral students and researchers. The Vice President for Sustainable Development blogs every week on current and long-term issues with an environmental and sustainability focus with a link to KTH and society in general. To create a stronger perception of KTH as a prominent organisation in the field, a strategy for communication of sustainable development was developed and implemented in 2017. The strategy applies to the whole of KTH and comprises approaches to highlight KTH’s activities and social impact with a connection to sustainable development.

**Sustainability projects**

In 2017, KTH worked to prepare a new campus plan for 2018–2023, which comprises all five campuses and focuses on a sustainable future. The campus plan describes the strategic planning of buildings and land.

Within the scope of the project Travel-free meetings in authorities (REMMy), KTH opted to work based on the Climate and Economic Research in Organisations (CERO) project in a cooperation between the KTH Sustainability Office and a researcher at the School of Architecture and Built Environment. The project includes both economic and environmental analyses of business travel and commuter travel, as well as workshops and resulted in a concrete action programme. The action programme for KTH was prepared in cooperation with the schools’ environmental representative and a number of departments in the university administration. A seminar on academia and travel was arranged during the year.

Within the scope of a waste project at KTH, several steps were taken to develop and improve source sorting in the university administration and for common spaces adjacent to educational facilities. The experiences form the basis for support and guidance to the schools. The project will continue in 2018. A seminar on waste as an unutilised resource of the city was also arranged.

Three cycling days were arranged in 2017; two days in connection with Arrival Days for international students and one day at Campus Flemingsberg. During the cycling days, students and employees received information on cycle routes and the possibility to try electric bicycles. In the cycling days’ competitions, there were ten used and renovated bicycles as prizes, which generated a hundred competition submissions with pictures of cycling students.

In spring 2017, KTH Campus received four new beehives. The bees produced 150 kg of honey during the year, which is available for purchase at several location on KTH Campus.
Staff

KTH is a university where people from different backgrounds and with different experiences work together with a common purpose to manage, innovate and deliver knowledge for the society of today and tomorrow. KTH should be a workplace where the desire for personal development and personal responsibility is stimulated. Presented below is a selection of staff and work environment activities performed during 2017.

Collegiality and leadership

Staff policy and Code of Conduct

The HR department worked to implement the staff policy and the Code of Conduct prepared in 2016. With the aim of developing a method to deepen the staff's knowledge of what the Code of Conduct entails, a pilot project was started. In this project, two groups were chosen, one with a focus on administrative duties and one focused on research and education. For each group, the project began with a seminar followed by coaching in smaller groups. The pilot project is being conducted in the scope of KTH’s participation in the Swedish Agency of Government Employees’ activity series Collegiality in employer collaboration in 2017/2018. Information material in both Swedish and English was also prepared.

Leadership development

KTH is investing in developing leadership at all levels, both academically and administratively. Leadership with personal responsibility is necessary to create an attractive workplace. KTH offers a leadership programme in three steps:

Step 1 addresses newly appointed managers with staff responsibility and academic leaders facing a management assignment. The purpose is to strengthen them in the leadership role and provide an in-depth understanding of the challenges of leadership in our academic environment. This year, 23 people, 15 men and eight women, participated.

Step 2 focuses on personal leader development. The aim is to deepen the participants’ knowledge about themselves in their leader role and increase their awareness of their approaches to various situations and relationships. This year, 18 people, ten men and eight women, participated.

Step 3 addresses higher managers and leaders. The aim is to provide a holistic perspective of leadership at a high level. The President chooses participants. This year, three people, one man and two women, participated in the higher leadership programme.

Networks and reunions were arranged for the leadership groups during the year. Newly appointed managers are annually offered two mentorship programmes that comprise parties from both the university sector and industry. The needs for leadership development look differently and are individualised in consultation with the superior manager. Consultative support and coaching are offered to managers.

On 31 March 2016, new regulations on the organisational and social working environment (AFS 2015:4) began to apply, which entail greater responsibility for KTH to provide managers with knowledge in the area. KTH’s HR staff received skills development with the aim of being able to provide a more structured support to managers in difficult staff matters.

Gender equality, diversity and equal opportunity

Reporting requirement: Universities must prepare a plan for how the university intends to develop the work on gender mainstreaming with the aim that the activities shall contribute to achieving the equality policy objectives, such as regards equal opportunities to career paths, gender-related study choices and student completion. The plan shall contain development needs, goals and activities that the university intends to undertake in 2017–2019. In addition, the plan will describe the manner in which equality will be integrated and become a part of the university’s ordinary activities, such as in the university’s steering processes.

The plan shall be prepared no later than 15 May 2017 and each university shall report measures and results based on the plan in their annual reports for 2017–2019.

An expert group led by the Vice President for Equality and Values was appointed in spring 2017 to prepare a plan for gender mainstreaming according to the Government’s assignment. Four problem areas were identified in the plan: Different conditions for men and women, excluding cultures, deficient knowledge of gender and gender equality, diversity and equal opportunity and deficient organisation in work on these areas. In addition, the plan states prioritised goals and measures for the period 2017–2019 and a description of how the gender equality, diversity and equal opportunity work will be organised at the schools to achieve a sweeping effect.

In the autumn, two gender equality, diversity and equal opportunity administrators were hire, of which on has special responsibility for the employees and one has corresponding responsibility for students. In the HR department, an Equality Office has been established, of which the Vice President for Equality and Values, the two administrators and experts in gender and organisation are a part. A programme for gender and change management was begun with 18 women leaders from the faculty and administration as participants. The programme aims to create change projects that will lead to a more inclusive culture, equal opportunities and greater knowledge of gender and equality at KTH. Another initiative aims for a coherent career support for assistant professors, associate professors, researchers and academic leaders with an integrated gender, gender equality, diversity and equal opportunity perspective.

In the autumn, KTH participated in three conferences arranged by the National Secretariat for Gender Research within the assignment of Gender Mainstreaming of universities with a focus on various themes in gender mainstreaming.
The first of the three conferences had the theme of education with KTH as the host. During the year, a foundation was also laid for a stronger cooperation with the KTH Student Union (THS) in equality issues.

Through a systematic work process to implement the Discrimination Act’s requirements on integrating equality issues into operational planning and the work environment efforts, an action plan for 2018 was prepared.

The framework for next year’s salary survey was prepared in a working group with broader representation than before. With the aim of increasing the quality of BESTA coding and level determination, a follow-up of the coding and level determination was done with HR managers at the schools, as well as training in the Swedish Agency for Government Employees’ salary mapping programme Analyskraft.

The Institute of Human Resource Indicators prepared the annual JAMIX report on KTH. JAMIX shows what equality looks like and how it has developed at KTH. For core operations, the year’s results also showed some positive development.

This year, the prize for the equality and diversity work for employees was awarded to Gabriella Hernqvist, Communications Officer at the School of Electrical Engineering, for her work mainly with student recruitment.

**Competence and career development**

KTH offers various opportunities or competence development with efforts aimed at target groups at every level in KTH. Programmes, courses, seminars and workshops are offered for continuous learning and implemented both by internal and external educators. Collaboration with other universities in networks and development efforts are conducted in project management, administration courses and mentorship programmes.

Nearly 600 employees participated in competence development activities and the distribution between men and women as a percentage is 40/60. Competence support for active career planning is offered to assistant professors with the aim of clarifying the requirements for further qualification to associate professor and professor. The career support is covered by various elements and in 2017, the participation figures were as follows: eight people, one man and seven women, participated in the mentorship programme Partners in learning (PIL), nine people, one man and eight women, participated in the academic development seminar series, and 23 people, seven men and 16 women, participated in leadership for associate professors.

KTH’s teachers and researchers participate to a great extent in international collaboration with universities all over the world. Several are also visiting professors at other universities. Through central efforts, KTH also contributed to the international exchange. For example, assistant professors, associate professors and professors were offered the opportunity to seek funding to concentrate for a limited time on their research at another university, in a so-called sabbatical period. The sabbatical period was financed with central funding and funding at a school level. In the period 2015-2017, 36 people applied for international sabbatical periods, of which 27 were approved, 22 men and five women.

New employees are offered an introduction at several levels. The welcome day for all new recruits aims to provide a quick insight into KTH’s organisation and values and the participants are given the opportunity to network with key people and other new employees at KTH.

A longer in-depth introduction programme for new administrators was conducted with the aim of spreading knowledge of the civil servant role, the university’s mission and to give administrative personnel room for a deeper experiential exchange with others in similar roles. A web-based introductory course on what it means to be a civil servant was developed by the University of Gothenburg, Lund University and Uppsala University. A plan for implementation of the course was prepared in 2017.

Employees are offered opportunities for personal development to increase their possibilities of developing in their professional role. Speech, presentation techniques, workshop techniques and language are examples of courses offered. In order to promote greater staff mobility at KTH, job shadowing is organised where possible to stimulate dialogue and collaboration. Courses are also offered in administration, working environment and safety.

KTH also encourages knowledge exchange with the surrounding world and offers teachers and administrative personnel the opportunity to apply for international exchange through Erasmus+. In 2017, 50 administrators and 13 teachers applied for and were granted compensation for exchange or courses within Erasmus+ for staff exchanges. The purpose is to strengthen the development of the individual and KTH’s exchange of knowledge with the outside world.

KTH wants to promote internal and external mobility and strives to provide employees with the possibility of developing their expertise and thereby maintaining their employability. For example, all permanent employees with a period of employment of at least three years and a degree of service of at least 50 per cent are offered life and career planning. This is available in various variants and includes individual coaching. Life and career planning is financed by local joint-party transition funding. During the year, a total of 36 employees, 27 women and 9 men, applied and 35 participated in life and career planning.

**KTH Relocation**

KTH Relocation works to streamline and centralise the reception of all staff KTH recruits from abroad. In 2017, Relocation assisted around 800 people with housing and other relevant service for those who are new to the country. Services are
offered during the first year at KTH, regardless of what form of financing the applicant has and the degree of the position. Besides housing, Relocation actively works to increase integration and establishment of the new recruits both at KTH and in society in general. Among other things, courses are offered in the Swedish language and Swedish working culture, information meetings on seeking housing, Swedish culture and history, on personal tax filings in Sweden and on beginning to build one’s career at KTH and in Sweden early on. Relocation also arranges after work mixers for those who need to establish new friendships.

Relocation also takes extensive responsibility for accompanying family members as around 30 per cent of those recruited have family members accompanying them. For accompanying family members of assistant professors, associate professors or professors, a tailor-made career support is offered, comprising three months of individual guidance into the Swedish labour market, regardless of former background and level of ambition. Some ten people received this career support in 2017. In collaboration with Stockholms Akademiska Forum, a career-oriented network is offered to all accompanying family members.

Working environment

KTH conducts systematic work environment efforts. All schools annually prepare a work environment plan where activities in both the physical and the organisational and social work environment are documented and followed up. This includes highlighting the activities done during the year and preparing a prospective action plan for further improvements. In 2017, the format and structure of the work environment plans were revised with the aim of making the plans more comprehensible and easier to work with.

In 2017, the schools worked with action plans based on the results from the employee survey in 2016. In addition, a central effort was made with joint-party funding that means that KTH offers a lecture together with a workshop on stress. In autumn 2017, preparations were under way for the next employee survey that will be conducted in spring 2018.

In connection with the work prior to the new school organisation, seminars and coaching were offered to managers and leaders in organisational change and change management. The purpose was to provide the units’ managers and leaders knowledge and support in the change work and how individuals and groups can react to it. To provide knowledge on responsibilities and obligations in the working environment and its application at KTH, work environment training was provided for managers during the year. In addition, a basic course in the work environment was held for safety representatives, as well as four training sessions in KLARA (the chemicals management system) for those taking stock and two for KLARA administrators.

In 2017, KTH continued to implement school-wise health, work environment and lifestyle studies, as well as the age-related health examinations that are offered to all employees who have turned 50, 55, 60 or 64.

Staff structure

The reporting of figures below may contain rounding effects.

In 2017, the average number of employees decreased by 226 to 4,952 (2,024 women and 2,928 men), compared with 5,178 in 2016 and 5,233 in 2015. The average number of employees is calculated based on measurements every month during the year and, as of 2017, externally employed doctoral students are not included in the calculations, which explains the large decrease compared with the previous year. When converted to full-time equivalents (FTEs), there was a reduction of nine to 3,563 in 2017 compared with 3,572 in 2016 and 3,656 in 2015. Measured in FTEs, the proportion of women increased by one percentage point to 38 per cent compared with 2016.

Teachers and researchers

The number of teachers decreased by two FTEs to 807 (women increased by 15 to 189 and men decreased by 17 to 618). The group of teachers includes professors, visiting professors, adjunct professors, associate professors, assistant professors, lecturers and visiting lecturers. The percentage of women among the teachers increased by 2 percentage points to 23 per cent compared with 2016.

Professors, visiting professors and adjunct professors

The number of FTEs in the professor group (professors, visiting professors and adjunct professors) decreased by 14 FTEs in 2017 to 296 (women by three to 46 and men by 21 to 250). Professors increased by two FTEs to 287 (women by one to 44 and men by one to 243). The percentage of women is unchanged at 15 per cent. During the year, 25 new professors were appointed (seven women and 18 men). Women accounted for 28 per cent of newly appointed professors in 2017.

Visiting professors decreased by two FTEs to eight (women by one to two and men by one to five).

The number of adjunct professors decreased by eight people and at year-end was 55 (women were unchanged at nine and men decreased by eight to 46). The percentage of women measured in numbers increased by 2 percentage points to 16 per cent. During the year, three people were recruited as adjunct professors (three men). All adjunct professors are employed by KTH, but have their primary activities located outside KTH. The employment comprises a minimum of 20 per cent and a maximum of 50 per cent of full time and the majority of the adjunct professors receive no salary from KTH. The number of FTEs for those receiving salary amount to one in 2017 (one man).
KTH now complies with ESV’s national guidelines for how FTES are to be calculated and then adjunct professors who do not receive salary from KTH shall not be included in the FTES. This change can explain a large part of the change in the number of FTES in the professor group.

**Associate professors, lecturers and guest teachers**

The number of associate professors decreased by two FTES to 285 (women increased by two to 68 and men decreased by two to 218). The percentage of women increased by one percentage point to 24 per cent compared with the preceding year. During the year, 20 new associate professors were appointed (six women and 14 men). Women accounted for 30 per cent of the new employees.

The number of lecturers increased by eight FTES to 155 (women increased by ten to 54 and men decreased by three to 100). The percentage of women in this category increased by 5 percentage points to 35 per cent compared with 2016.

The number of visiting lecturers decreased by two FTES to five (women by one to three and men by two to two). Visiting lecturers at KTH have temporary employment and the scope is most often part time.

**Qualification appointments: assistant professors and postdocs**

At KTH, assistant professors together with postdocs belong to the category of qualification appointments. The number of qualification appointments in 2017 increased by 32 FTES to 216 (women by 12 to 61 and men by 20 to 155). The percentage of women who have qualification appointments is 28 per cent, which is an increase of 1 percentage point compared with 2016.

The number of assistant professors increased by nine FTES to 66 (women by six to 17 and men by three to 49). The percentage of women increased by 6 percentage points compared with 2016 to 26 per cent. During the year, 20 assistant professors were appointed (seven women and 13 men). 35 percent of the new employees were women.

The number of postdocs increased by 22 FTES to 150 (women by six to 43 and men by 17 to 107). The percentage of women was unchanged at 29 per cent compared with 2016. Postdocs have temporary employment of a maximum of two years.

**Researchers and research engineers**

Researchers and research engineers decreased by 14 FTES to 546 (women by one to 157 and men by 16 to 390). The percentage of women was 29 per cent, which is the same as the previous year.

**Doctoral student employment**

In 2017, doctoral students with employment decreased by 13 FTES to 938 (women by three to 277 and men by ten to 661). For doctoral students with employment, the percentage of women increased by 1 percentage point to 30 per cent compared with 2016.

**Technical and administrative staff**

The technical and administrative staff, including the library staff, increased by 16 FTES to 1,017 (women increased by 12 to 639 and men by five to 378). The percentage of women was unchanged at 63 per cent compared with the preceding year.
Premises

At the end of 2017, KTH disposes over around 289,000 m² (269,000 m²) in premises area and the increase over the year before is due to new buildings and leases. More than 30,000 m² is sublet to the Swedish Red Cross University College, Stockholm University and Karolinska Institutet, among others. The proportion of empty premises at year-end was 4 per cent of which office premises are around 7,200 m², individual lab premises around 800 m², and corridors and storage spaces, etc. In total, around 11,500 m² empty premises are spread over campus and of them 1 per cent is used temporarily for evacuation due to major renovations. The goal is to have a maximum of 3 per cent empty premises.

Major construction and renovation projects completed in 2017

- Two departments in the School of Architecture and the Built Environment, the Department of Transport Science and the Department of Sustainable Development, Environmental Sciences and Engineering, moved into a new administration building at Teknikringen 10A. The building has five floors and the area is around 5,000 m².
- In October, the new teaching building at Brinellvägen 26 was completed. The building has a premises area of around 2,700 m² distributed over six floors, open study areas and a small exhibition hall.
- Teknikringen 29–33 underwent a major renovation and conversion in 2016 and 2017. At year-end, the final return moves were under way of the operations evacuated to other buildings.

Smaller rebuilding and renovation projects completed in 2017

During the summer period, it is possible to carry out fairly extensive rebuilding and renovation work on classrooms and study areas and in 2017 this affected the following premises:
- The smaller lecture halls V2 and V3 and open study areas at Brinellvägen 23.

Other ongoing building projects

- In the building in which the Swedish Red Cross University College was previously located, Teknikringen 1, project engineering is under way to adapt the premises to the tenants for units in the university administration.
- In Snäckviken in Södertälje, KTH took over renovated premises at the end of October. Due to the delay in the renovation, the School of Industrial Engineering and Management will move in at the beginning of January 2018.
- In the new university area Albano, production is under way of four new buildings for KTH and Stockholm University. Building 3, which will be adjacent to the Physics Centre at AlbaNova, new premises are being built for KTH with an area of around 8,000 m² for the House of Science, Nordita and parts of the Department of Applied Physics.

Student and visiting researcher accommodation

Under a government decision, KTH is allowed to sub-let apartments to students and visiting researchers. KTH currently provides a large number of student rooms and apartments for exchange students, foreign master’s students and visiting researchers.

In 2017, KTH was able to provide accommodation to 1,800 students. The rental portfolio comprises 1,417 rooms and apartments. The occupancy rate has been around 85 per cent during the whole year. Maintenance and cleaning of the accommodation is done in the summer.

KTH Relocation mediates housing to visiting researchers. In 2017, KTH Relocation has a total portfolio of 215 accommodation units all over greater Stockholm. The occupancy rate is 95 per cent. In addition to these units, there is also a boarding house, Matsällskapet in Solna, with an occupancy rate of around 75 per cent spread over the year. In total, more than 800 visiting researchers and newly employed foreign visiting researchers and doctoral students received their housing through KTH Relocation 2017. In summer 2017, some 20 applicants were turned down, but otherwise, KTH was able to place all people who contacted KTH Relocation.

During the year, around 600 of the planned visiting researcher and student accommodations on KTH Campus were completed and brought into use. KTH Accommodation and KTH Relocation have close cooperation to ensure as high an occupancy rate as possible.

For future years, KTH forecasts that the need for housing will continue to be high. In 2018, another large number of student apartments will be completed within KTH Campus, which follows the forecast higher demand.
Financial results and changes in capital

KTH continues to have strong finances and a good financial base for continued strategic initiatives. For 2017, KTH reports a surplus of SEK 14 million, compared with a deficit of SEK 14 million for 2016. The forecast for the year was a deficit of SEK 36 million. The financial results are distributed over a deficit for the operations in first- and second-cycle education of SEK 49 million and a surplus for the research and education at third-cycle of SEK 63 million. This is a large deviation from the forecast for operations in research and education at third-cycle where a deficit of SEK 13 million was forecast. One of the reasons for the deviation is that the faculty positions were not filled at the rate planned.

The result is affected by KTH being responsible for SciLifeLab, but to a lesser extent than in earlier years. Altogether, the year’s earnings were affected by SEK -2 million (11) in connection with KTH being the principal for SciLifeLab.

Turnover increased by more than 3 per cent and amounted to SEK 5,076 million, measured as the operating income including funding for financing of transfers. In the past ten years, KTH’s turnover has increased by nearly 61 per cent. The revenues increased by 52 per cent and the transfers more than doubled in the same period. The increase in the transfers is mainly due to the strategic research domains and the responsibility for SciLifeLab.

The agency capital amounts to SEK 779 million, which still corresponds to nearly 15 (16) per cent of turnover according to the above definition. The long-term objective is that the agency capital will amount to 10 per cent of turnover. In 2015, a decision was made on investments financed by agency capital; the investments began in the second half of 2016 and in 2017 impacted earnings by SEK -33 million.

<table>
<thead>
<tr>
<th>Surplus/deficit</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>4,549</td>
<td>4,426</td>
</tr>
<tr>
<td>Costs</td>
<td>4,535</td>
<td>4,445</td>
</tr>
<tr>
<td>Profit/loss</td>
<td>14</td>
<td>-18</td>
</tr>
<tr>
<td>Profit/loss subsidiaries</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Revenues for transfers</td>
<td>527</td>
<td>482</td>
</tr>
<tr>
<td>Grant issued (costs for transfers)</td>
<td>-527</td>
<td>-482</td>
</tr>
<tr>
<td>Profit/loss</td>
<td>14</td>
<td>-14</td>
</tr>
</tbody>
</table>

Source: Financial system
Income
Operating income increased by nearly 3 per cent and in 2017 amounted to SEK 4,549 million, SEK 122 million more than 2016.

First- and second-cycle education
Compared with 2016, revenue increased by SEK 61 million and continue to account for 31 per cent of the total revenue. In 2017, revenue amounted to SEK 1,414 (1,353) million. Revenue from fee-paying students amounted to SEK 121 (96) million, which corresponds to 3 per cent of the total revenues.

Income from grants for first- and second-cycle education increased by just over 3 per cent and amounted to SEK 1,080 million. During the year, KTH had an overproduction of performance in first- and second-cycle education and therefore deducted the entire funding cap. The collective overproduction is now larger than 10 per cent of the ceiling amount and SEK 30 million may not be kept.

Income from fees and other compensation increased by 13 per cent (SEK 32 million) and amounted to SEK 269 million. The main explanation for the increase is that income from tuition fees increased by SEK 25 million compared with the previous year and an additional SEK 17 million from rental of student accommodation. During the autumn term 2017, 644 (523) new paying students were registered at KTH, which is an increase of 23 per cent compared with the previous year. Many of the paying students rent accommodation through KTH Accommodation. Operations concerning education of tuition-fee-paying students shows a surplus of SEK 14 million in 2017 compared with SEK 2 million in 2016. The accumulated earnings for the fee-financed education now shows a surplus for the first time.

Research and education at third-cycle
This income constitutes 69 per cent of total revenue and amounts to SEK 3,135 million, which is an increase of 2 per cent compared with the previous year.

The income from funding for research and third-cycle education increased by SEK 15 million compared with 2016, which roughly matches the price and wage adjustment.

Income from fees and other compensation increased by SEK 6 million, which is a smaller increase than the previous year when the build-up of SciLifeLab affected the income in this group.

The income from grants increased by SEK 41 million. Besides the direct Government funding, the Swedish Research Council is KTH’s largest financier and income from grants from the Swedish Research Council amount so SEK 316 (318) million. The EU is the second largest financier with grant income of SEK 236 (249) million. The Foundation for Strategic Research (SSF) accounts for a large increase in the grant income. Grants from SSF totalled SEK 106 million in 2017 compared with SEK 73 million in 2016. The increase is due in part to grants for the Centre for Maritime Robotics.
Costs
Operating costs increased by 2 per cent and now amount to SEK 4,535 million.

First- and second-cycle education
These costs constitute 32 (31) per cent of total costs and amount to SEK 1,463 million, which is an increase of SEK 67 million compared with the previous year. The premises costs increased by SEK 34 million, which is an increase of 11 per cent. In addition to new leases, the increase is due to larger number of student and visiting researcher apartments. Investments in connection with relocation in new teaching premises, such as in Flemingsberg, also entailed higher depreciation.

Research and education at third-cycle
These costs continue to constitute 68 per cent of total costs and amount to SEK 3,072 million, which is an increase of SEK 24 million compared with the previous year, almost 1 per cent.

The personnel costs increased by SEK 44 (8) million. The development of personnel costs is now back to a more normal level compared with 2016 when the number of FTE’s decreased mainly in the group of doctoral students. The staff structure is described in further detail in the section on Staff.

<table>
<thead>
<tr>
<th>Category</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total costs</td>
<td>4,535</td>
<td>4,445</td>
</tr>
<tr>
<td>Staff</td>
<td>60.1%</td>
<td>60.1%</td>
</tr>
<tr>
<td>Premises</td>
<td>18.4%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Other operating costs</td>
<td>16.5%</td>
<td>16.4%</td>
</tr>
<tr>
<td>Depreciation</td>
<td>4.8%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Financial cost</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

Source: Financial system
KTH currently manages 110 civil law foundations through affiliated management. During the year, the foundations Stiftelsen De första M4 fond and Stiftelsen biokemisk forskning awarded the full fund capital for their purposes. This means that they lack assets and are deregistered.

The foundations were formed through various donations to KTH. The oldest foundation has its origins in donations from 1866, when they were donated to KTH’s predecessor, the Kongl. Teknologiska Institutet. The donation was from the Wällofliga Borgeståndet and was intended to create a scholarship fund for students without means who had distinguished themselves through hard work, aptitude and honourable behaviour.

Purpose management
The purpose of every foundation is stated in the Foundation Regulations. In 2017, the KTH-affiliated foundations distributed nearly SEK 19 million. The largest group of these foundations, 54 in all, award scholarships to students in the first and second cycle. It was decided to distribute around SEK 7 million through 424 scholarships from these foundations. Of these, SEK 3 million is from the largest foundation that KTH manages, the Foundation Henrik Göransson Sandviken Scholarship Fund. This foundation has assets of SEK 140 million, which shall mainly be invested in securities related to Sandvik AB. 31 foundations distribute travel grants to teachers, researchers and doctoral students. From them, grants of just over SEK 4 million were distributed through 208 scholarships in 2017. Other foundations contribute to research activities at KTH. During the year it was decided to distribute grants totalling more than SEK 6 million in 50 grants for such activities.

The second largest foundation managed by KTH is the KTH Great Prize Foundation, coming from a donation in 1944. The donor, who wished to remain anonymous, stipulated that the prize should go to a Swedish citizen who had great significance for Sweden through historical discoveries, ingenious applications or artistic effort. The prize was SEK 1.2 million and was awarded in connection with the KTH conferment and inauguration ceremony. In 2017, the prize was awarded to the author, dramatist, comedian and artist Jonas Gardell. The University Board’s motivation stated: “In a mix of the deepest solemnity and intense humour, Jonas Gardell helps us, in a tender way, to recognise both prejudice and shortcomings. Through his boundary-breaking artistry, he has changed and deepened our vision in terms of exclusion and its devastating consequences. At the same time that he urgently defends humanity’s right to dignity and right to choose one’s own path.”

The foundations pay an annual management fee to KTH for the costs that arise from management. In 2017, this amounted to SEK 1.5 million.

Asset management
The assets in the affiliated foundations are managed by two external discretionary asset managers. These managers are entitled to carry out transfers in the KTH portfolio within the framework outlined in the KTH investment policy for these foundations. Total foundation assets at year-end were SEK 764 million (SEK 700 million in 2016).

Figure 22
Size and number of foundations
Capital, MSEK at end of December 2017

<table>
<thead>
<tr>
<th>Number</th>
<th>Capital Mnkr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundations, 15-174 MSEK</td>
<td>12</td>
</tr>
<tr>
<td>Foundations, 5-15 MSEK</td>
<td>20</td>
</tr>
<tr>
<td>Foundations, 1-5 MSEK</td>
<td>44</td>
</tr>
<tr>
<td>Foundations, up to 1 MSEK</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
</tr>
</tbody>
</table>

Source: Bank statements of the foundations
## Financial Statement

### Operating revenues

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Government grants</td>
<td>2,264,457</td>
<td>2,215,352</td>
<td>2,202,935</td>
<td>2,204,918</td>
<td>2,021,228</td>
</tr>
<tr>
<td>Revenues from tuition fees and other charges</td>
<td>581,022</td>
<td>543,086</td>
<td>497,627</td>
<td>426,998</td>
<td>423,844</td>
</tr>
<tr>
<td>Revenues from grants</td>
<td>1,698,050</td>
<td>1,662,645</td>
<td>1,647,845</td>
<td>1,603,381</td>
<td>1,576,814</td>
</tr>
<tr>
<td>Financial income</td>
<td>5,161</td>
<td>5,114</td>
<td>3,164</td>
<td>7,528</td>
<td>16,236</td>
</tr>
<tr>
<td><strong>Total operating revenues</strong></td>
<td><strong>4,548,690</strong></td>
<td><strong>4,426,198</strong></td>
<td><strong>4,351,571</strong></td>
<td><strong>4,242,825</strong></td>
<td><strong>4,038,122</strong></td>
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</tbody>
</table>

### Operating costs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff costs</td>
<td>2,727,105</td>
<td>2,669,311</td>
<td>2,643,190</td>
<td>2,565,289</td>
<td>2,460,926</td>
</tr>
<tr>
<td>Costs for premises</td>
<td>836,017</td>
<td>807,880</td>
<td>761,362</td>
<td>737,816</td>
<td>698,343</td>
</tr>
<tr>
<td>Other operational costs</td>
<td>745,230</td>
<td>731,618</td>
<td>697,741</td>
<td>679,637</td>
<td>684,704</td>
</tr>
<tr>
<td>Financial costs</td>
<td>7,566</td>
<td>8,552</td>
<td>5,762</td>
<td>4,775</td>
<td>5,527</td>
</tr>
<tr>
<td>Depreciation</td>
<td>219,432</td>
<td>227,156</td>
<td>220,756</td>
<td>171,463</td>
<td>181,860</td>
</tr>
<tr>
<td><strong>Total operating costs</strong></td>
<td><strong>4,535,350</strong></td>
<td><strong>4,444,518</strong></td>
<td><strong>4,328,810</strong></td>
<td><strong>4,158,380</strong></td>
<td><strong>4,031,359</strong></td>
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### Total operating outcome

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,340</strong></td>
<td><strong>-18,320</strong></td>
<td><strong>22,761</strong></td>
<td><strong>84,445</strong></td>
<td><strong>6,762</strong></td>
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</table>

### Outcome from shares of subsidiary companies and other interests

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>229</strong></td>
<td><strong>4,059</strong></td>
<td><strong>1,011</strong></td>
<td><strong>1,806</strong></td>
<td><strong>1,337</strong></td>
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</tbody>
</table>

### Transfers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds allocated from government budget for financing of grants</td>
<td>317,409</td>
<td>309,729</td>
<td>257,783</td>
<td>231,449</td>
<td>249,144</td>
</tr>
<tr>
<td>Funds allocated from government agencies for financing of grants</td>
<td>143,103</td>
<td>128,269</td>
<td>118,301</td>
<td>90,320</td>
<td>41,288</td>
</tr>
<tr>
<td>Other funds received for financing of grants</td>
<td>66,412</td>
<td>48,465</td>
<td>43,937</td>
<td>41,288</td>
<td>380,751</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>526,925</strong></td>
<td><strong>143,948</strong></td>
<td><strong>143,680</strong></td>
<td><strong>145,668</strong></td>
<td><strong>160,748</strong></td>
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</table>

### Outcome of transfers

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
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### Changes to capital for year

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,569</strong></td>
<td><strong>-14,261</strong></td>
<td><strong>21,750</strong></td>
<td><strong>82,639</strong></td>
<td><strong>8,099</strong></td>
</tr>
</tbody>
</table>

### Financial Statement per operational area

#### Operating revenues

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>2,264,457</td>
<td>2,079,740</td>
<td>1,078,740</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Government grants</td>
<td>2,264,457</td>
<td>2,079,740</td>
<td>1,078,740</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Revenues from tuition fees and other charges</td>
<td>581,022</td>
<td>244,238</td>
<td>14,023</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Revenues from grants</td>
<td>1,698,050</td>
<td>63,991</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Financial income</td>
<td>5,161</td>
<td>1,101</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total operating revenues</strong></td>
<td><strong>4,548,690</strong></td>
<td><strong>1,389,069</strong></td>
<td><strong>14,023</strong></td>
<td><strong>10,692</strong></td>
<td><strong>3,021,802</strong></td>
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</tbody>
</table>

#### Operating costs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff costs</td>
<td>2,727,105</td>
<td>795,753</td>
<td>4,856</td>
<td>4,144</td>
<td>1,871,091</td>
</tr>
<tr>
<td>Costs for premises</td>
<td>836,017</td>
<td>340,477</td>
<td>549</td>
<td>683</td>
<td>484,717</td>
</tr>
<tr>
<td>Other operational costs</td>
<td>745,230</td>
<td>254,060</td>
<td>6,419</td>
<td>9,041</td>
<td>43,937</td>
</tr>
<tr>
<td>Financial costs</td>
<td>7,566</td>
<td>2,248</td>
<td>1</td>
<td>34</td>
<td>5,170</td>
</tr>
<tr>
<td>Depreciation</td>
<td>219,432</td>
<td>44,678</td>
<td>0</td>
<td>0</td>
<td>168,468</td>
</tr>
<tr>
<td><strong>Total operating costs</strong></td>
<td><strong>4,535,350</strong></td>
<td><strong>1,437,216</strong></td>
<td><strong>11,825</strong></td>
<td><strong>13,902</strong></td>
<td><strong>2,963,883</strong></td>
</tr>
</tbody>
</table>

### Total operating outcome

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,340</strong></td>
<td><strong>-48,147</strong></td>
<td><strong>21,750</strong></td>
<td><strong>82,639</strong></td>
<td><strong>8,099</strong></td>
</tr>
</tbody>
</table>

### Outcome from shares of subsidiary companies and other interests

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>229</strong></td>
<td><strong>4,059</strong></td>
<td><strong>-1,011</strong></td>
<td><strong>-1,806</strong></td>
<td><strong>229</strong></td>
</tr>
</tbody>
</table>

### Transfers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds allocated from government budget for financing of grants</td>
<td>317,409</td>
<td>2,533</td>
<td>0</td>
<td>0</td>
<td>314,876</td>
</tr>
<tr>
<td>Funds allocated from government agencies for financing of grants</td>
<td>143,103</td>
<td>28,330</td>
<td>0</td>
<td>0</td>
<td>114,728</td>
</tr>
<tr>
<td>Other funds received for financing of grants</td>
<td>66,412</td>
<td>970</td>
<td>0</td>
<td>0</td>
<td>65,442</td>
</tr>
<tr>
<td>Grants made</td>
<td>-526,925</td>
<td>-81,629</td>
<td>-434,516</td>
<td>-393,687</td>
<td>-380,751</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

### Changes to capital for year

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
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<tbody>
<tr>
<td><strong>Total</strong></td>
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<td><strong>-48,147</strong></td>
<td><strong>21,750</strong></td>
<td><strong>82,639</strong></td>
<td><strong>8,099</strong></td>
</tr>
</tbody>
</table>
## Balance Sheet

### Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>2017-12-31</th>
<th>2016-12-31</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Intangible fixed assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capitalised expenditure for development</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Intellectual rights and other intangible assets</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>II. Tangible fixed assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improvements to non-owned real estate</td>
<td>736,750</td>
<td>728,949</td>
</tr>
<tr>
<td>Machines, inventory items, installation etc.</td>
<td>244,045</td>
<td>236,666</td>
</tr>
<tr>
<td>Construction in progress</td>
<td>439,410</td>
<td>463,079</td>
</tr>
<tr>
<td>Advance payments for tangible fixed assets</td>
<td>49,307</td>
<td>29,204</td>
</tr>
<tr>
<td>III. Financial fixed assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interests in wholly and partially owned companies</td>
<td>27,978</td>
<td>27,355</td>
</tr>
<tr>
<td>Other investments held as fixed assets</td>
<td>27,888</td>
<td>27,265</td>
</tr>
<tr>
<td>IV. Receivables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receivables – customers</td>
<td>123,954</td>
<td>117,088</td>
</tr>
<tr>
<td>Receivables – other government agencies</td>
<td>95,615</td>
<td>80,530</td>
</tr>
<tr>
<td>Other receivables</td>
<td>1,039</td>
<td>1,726</td>
</tr>
<tr>
<td>VII. Cut of items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>719,402</td>
<td>602,344</td>
</tr>
<tr>
<td>Accrued grant revenues</td>
<td>236,463</td>
<td>206,949</td>
</tr>
<tr>
<td>Other accrued revenues</td>
<td>481,264</td>
<td>393,460</td>
</tr>
<tr>
<td>VIII. Settlement with Government</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlement with Government</td>
<td>39,886</td>
<td>37,924</td>
</tr>
<tr>
<td>IX. Cash and cash equivalents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance and interest-bearing account at Swedish National Debt Office</td>
<td>1,392,962</td>
<td>1,460,344</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>88,864</td>
<td>104,804</td>
</tr>
<tr>
<td>TOTAL ASSETS</td>
<td>3,001,046</td>
<td>2,935,880</td>
</tr>
</tbody>
</table>

### Capital and Liabilities

<table>
<thead>
<tr>
<th>Description</th>
<th>2017-12-31</th>
<th>2016-12-31</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Agency capital</td>
<td>788,668</td>
<td>664,161</td>
</tr>
<tr>
<td>Government Capital</td>
<td>24,557</td>
<td>23,467</td>
</tr>
<tr>
<td>Outcome from shares of/subsidiary companies and other interests</td>
<td>3,735</td>
<td>281</td>
</tr>
<tr>
<td>Changes to capital brought forward</td>
<td>736,807</td>
<td>755,127</td>
</tr>
<tr>
<td>Changes to capital according to Financial Statement</td>
<td>13,569</td>
<td>-14,261</td>
</tr>
<tr>
<td>III. Provisions</td>
<td>39,886</td>
<td>37,924</td>
</tr>
<tr>
<td>Provisions for pensions and similar commitments</td>
<td>12,847</td>
<td>12,477</td>
</tr>
<tr>
<td>Other provisions</td>
<td>27,039</td>
<td>25,447</td>
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<tr>
<td>IV. Liabilities etc.</td>
<td>1,029,414</td>
<td>984,989</td>
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<tr>
<td>Loans from Swedish National Debt Office</td>
<td>568,619</td>
<td>534,976</td>
</tr>
<tr>
<td>Accounts payable - other government agencies</td>
<td>85,799</td>
<td>100,996</td>
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<tr>
<td>Accounts payable - suppliers</td>
<td>134,463</td>
<td>140,143</td>
</tr>
<tr>
<td>Other accounts payable</td>
<td>199,426</td>
<td>208,836</td>
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<tr>
<td>Deposits</td>
<td>36</td>
<td>38</td>
</tr>
<tr>
<td>V. Cut-off items</td>
<td>1,153,078</td>
<td>1,148,352</td>
</tr>
<tr>
<td>Accrued expenses</td>
<td>96,396</td>
<td>97,816</td>
</tr>
<tr>
<td>Unutilised grants</td>
<td>1,037,155</td>
<td>1,032,032</td>
</tr>
<tr>
<td>Other prepaid revenues</td>
<td>19,527</td>
<td>18,504</td>
</tr>
<tr>
<td>TOTAL CAPITAL AND LIABILITIES</td>
<td>3,001,046</td>
<td>2,935,880</td>
</tr>
</tbody>
</table>

### Contingent Liabilities

<table>
<thead>
<tr>
<th>Description</th>
<th>2017-12-31</th>
<th>2016-12-31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government guarantees for loan and credits</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Other contingents liabilities</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>