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About KTH

Since its founding in 1827, KTH Royal Institute of Technology in Stockholm as grown to become one of Europe’s preeminent technical and engineering universities, as well as a key centre of intellectual talent and innovation. As Sweden’s largest provider of technical education and research, KTH attracts students, teachers and scholarly researchers from all corners of the globe.

KTH works closely with industry and the society-in-general 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 aging population.

Education and scholarly research at KTH covers a very wide area – not only in science and technology, but also within the fields of architecture, industrial economics, urban planning and education for instance. Our innovative climate promotes versatile solutions and facilitates the creation of a new generation of engineers, architects and teachers. In the next few years, an extra focus will be placed on digitalisation, sustainability, internationalisation and gender equality.

KTH participates in international research collaborations plus a large number of educational exchanges and joint programmes with universities and other institutions of higher education all over the world. KTH’s joint collaborations with strategic partners, such as business enterprises, governmental authorities and non-profit organisations provides our students and researchers a wide and broad network of contacts to take advantage of.

KTH’s educational and research activities are distributed throughout 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 educational programmes and advanced research in biotechnology and physics at AlbaNova, near Roslagstull, and adjacent to the KTH Campus.

Karolinska Institutet Science Park in Solna is home to SciLifeLab – Science for Life Laboratory, which is operated together with Karolinska Institutet, Stockholm University and Uppsala University. Education and research in the field of information technology is located at Kista in northern Stockholm, close to high-tech companies and research institutions involved in the field of IT.

With a focus on medical technology, KTH is a part of Campus Flemingsberg in the southern suburbs of Stockholm. In Södertälje, KTH is expanding its offerings in education and research in sustainable production. In collaboration with Scania, AstraZeneca and Södertälje Municipality, KTH is a key partner in Södertälje Science Park.
### KTH in figures 2018

#### Educational activities
- Master of Architecture and 16 Master of Science in Engineering programmes
- Master of Science in Engineering combined with Degree in Education
- 9 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
- 13,633 full time students, of which 34 per cent are women and 66 per cent men (including fee-paying students)
- 11,321 annual performance equivalents (including fee-paying students)
- 1,722 active research students (at least 50 per cent activity), of which 30 per cent are women and 70 per cent men
- 2,651 new students on the first year of Master of Science in Engineering, Master of Architecture and Bachelor of Science in Engineering programmes of which 33 per cent are women and 67 per cent men
- 738 admitted to the Technical Preparatory Programme, of which 33 per cent are women and 67 per cent men
- 2,557 new students on one and two-year Master’s programmes, 34 per cent women and 66 per cent men, of whom 1,304 students previously on Master of Science in Engineering studies programmes and 1,253 students studying on a one or two-year Master’s programme at KTH
- 307 newly-admitted students to doctoral studies programmes, of which 28 per cent are women and 72 per cent men
- 84 Master of Architecture, 60 per cent to women and 40 per cent to men
- 1,134 Master of Science in Engineering degrees, 34 per cent to women and 66 per cent to men
- 273 Bachelor of Science in Engineering degrees, 26 per cent to women and 74 per cent to men
- 1,390 Master/Master of Science (one and two-year) degrees, 38 per cent to women and 62 per cent to men
- 276 PhDs, 33 per cent to women and 67 per cent to men
- 65 licentiate degrees, 37 per cent to women and 63 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 five programme areas within the European Institute of Innovation and Technology (EIT):
  - EIT InnoEnergy
  - EIT Digital
  - EIT Health
  - EIT Raw Materials
  - EIT Urban Mobility
- External financing, income from grants, 1,704 MSEK (excluding transfers):
  - MSEK 272 the Swedish Research Council
  - MSEK 257 EU
  - MSEK 156 Vinnova
  - MSEK 221 Wallenberg Foundations
  - MSEK 273 other government agencies
  - MSEK 525 other external financing including private funds

#### Financial situation
- MSEK 5,366 in total turnover (of which MSEK 580 transfers)
- Government grants (excluding transfers):
  - MSEK 1,159 First and second level (undergraduate) educational programmes
  - MSEK 1,208 Research and third education cycle

#### Employees
- 4,925 employees, the equivalent of 3,628 full time positions, of which 1,406 are women and 2,222 men of which:
  - 308 professors, 53 women and 255 men (including visiting and adjunct professors)
  - 280 associate professors, 66 women and 214 men

#### Floor Space
- 289,300 m²
## Organisation

### KTH's management and faculty

Since 1 January 2018, KTH education and research has been organised into five Schools. Under each of the Schools, there are a number of departments, institutions, competence centres and study programmes. All of the Schools 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 relating to certain issues.

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

The President leads the University's activities, under the direction of the University Board. The Deputy President acts as the President in the event of absence. There are also Vice Presidents for Digitalization, Research, Sustainable Development, Global Relations and Overall International Cooperation, and for Equality and Values.

The President’s Strategy Council deals with strategic issues that concern all Schools and is composed of the President, Deputy President, Dean of Faculty, Vice Dean of Faculty, 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 Chairperson of the Student Union at the Royal Institute of Technology. In addition there is a Heads of School Council with the President, Deputy President, all Heads of School and the University Director.

The Faculty Council represents the entire faculty and has overall responsibility for issues relating to the quality of education, research and joint collaborations. The Council is also an advisory body to the President. There is a faculty meeting group, the primary task of which is to facilitate and reinforce the faculty’s access to information and influence concerning processes and decisions. The Education Committee of the Faculty Council has three main tasks: overall design of the educational offering; preparing KTH’s work on quality development and monitoring concerning education; and the preparation of the development of governing documents concerning the educational programmes 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 appointments to teaching staff. The Faculty Council has a promotions board and recruitment committees.

The Faculty Council also has a Resource Allocation Committee which primarily prepares matters concerning the allocation of the Swedish Government funding for research and doctoral education.

### KTH Schools with operating areas

<table>
<thead>
<tr>
<th>School of Architecture and the Built Environment (ABE)</th>
<th>School of Electrical Engineering and Computer Science (EECS)</th>
<th>School of Industrial Engineering and Management (ITM)</th>
<th>School of Engineering Science (SCI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Architecture</td>
<td>- Computational Science and Technology</td>
<td>- Energy Technology</td>
<td>- Aeronautical and Vehicle Engineering</td>
</tr>
<tr>
<td>- Civil and Architectural Engineering</td>
<td>- Electromagnetic Engineering</td>
<td>- Sustainable Production Development</td>
<td>- Physics</td>
</tr>
<tr>
<td>- Philosophy and History</td>
<td>- Electronics</td>
<td>- Production Engineering</td>
<td>- Mathematics</td>
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**School of Engineering Sciences in Chemistry, Biotechnology and Health (CBH)**

- Fibre and Polymer Technology
- Gene Technology
- Industrial Biotechnology
- Engineering Pedagogics
- Chemistry
- Chemical Engineering
- Medical Engineering and Health Systems
- Protein Science
- Theoretical Chemistry and Biology

**School of Industrial Engineering and Management (ITM)**

- Energy Technology
- Sustainable Production Development
- Industrial Economics and Management
- Production Engineering
- Learning
- Machine Design
- Materials Science

**School of Engineering Science (SCI)**

- Aeronautical and Vehicle Engineering
- Physics
- Solid Mechanics
- Mathematics
- Mechanics
- Applied Physics
In the KTH Development Plan, which was presented last year, the direction in which KTH will proceed and how KTH is to evolve over the years 2018-2023 is planned out. One can find here answers to the questions: What is KTH? What does KTH want? and, in what direction should KTH proceed?

This Annual Report, which outlines the activities for the first of the six years encompassed by the Plan, reflects in an exciting way how KTH has commenced its journey and its pursuit to be a leading, integrated, transparent, open, increasingly digitalised, more sustainable, and a more international KTH with greater gender equality.

A huge change took place already on the first day – 1 January 2018 – when the number of Schools at KTH was reorganised to half. We now have five KTH Schools instead of ten. This change was implemented for the purpose of creating a more uniform, efficient and effective and excellent organisation, where the further development of the joint activities support is the next stage.

The new development plan and new organisation in 2018 has set the tone for a KTH with contract education, the conducting of research, and joint collaborations. This Annual Report will be a useful source of information about everything from the number of applicants to our educational programmes and how our research is structured and its contents to our joint collaborations and development of innovation. To state it concisely, all the component elements, capabilities and areas of expertise that together makes KTH Royal Institute of Technology one of Europe’s highest ranked technical universities along with information about its campus areas. It also highlights the steps along the way KTH has taken during the year.

As it concerns our research, KTH has been extremely successful in obtaining external funding from both the Swedish Research Council and the Swedish Foundation for Strategic Research (SSF), as well as from the Knut and Alice Wallenberg Foundation. Basic research and, especially interdisciplinary and multidisciplinary research efforts, have been encouraged in this way, as well as has more specific research.

Research collaboration, both nationally and internationally, is an important component part of KTH’s work for excellence, where a number of centres were established during the year, such as MedTechLabs where together with the Stockholm County Council and Karolinska Institutet KTH deepened their collaboration within the field of medical and technical research.

KTH has also further developed its laboratory and strategic infrastructure via establishing nine KTH research infrastructures with a high level of accessibility, significant utilisation, and long-term perspective, as well as six additional infrastructure environments with excellent potential for the future. This also benefits the educational programmes, where access to infrastructure strengthens student’s learning.

With regard to KTH’s research from an international perspective, KTH’s involvement as a partner in five out of the eight knowledge and innovation groups within the European Institute of Innovation & Technology (EIT), should be mentioned.

As in previous years, our international involvement and cooperation is extensive. KTH (along with Karolinska Institutet and Stockholm University) is now part of a joint initiative, the Stockholm-Tokyo University Partnership, which focuses on issues a variety of topical issues, such as sustainability issues.

Sustainable development, which, together with gender equality, internationalisation and digitisation, constitutes KTH’s four pillars, must be an integral part of all of our activities.

For instance, within the field of sustainable development, extensive work is done within research and education, as well as within activities specifically related to sustainable development.

Among these relevant activities, we can mention our new Campus Plan, with its focus on a sustainable future, KTH’s environmental management system (which was re-certified), sustainable development that is integrated into all educational programmes and teaching at all levels.

At KTH Södertälje, whose new campus was inaugurated with festive activities at the beginning of the year, a major investment is being made in sustainable production. Plus the new programme leading to the Degree of Master of Science in Engineering with a major in industrial technology and sustainability which commenced during the year can be mentioned in this context.

What is most important of course is consistent quality throughout KTH’s activities, something that is essential for its success. During the year, extensive quality assurance work has been conducted with an eye on KTH’s own priorities, national requirements and European guidelines.

Something that readers of prior Annual Reports will notice is that starting with this year’s edition of the Annual Report the Student Union at the Royal Institute of Technology has its own page. Don’t miss reading it!

Sigrun Karlsson,
President
The students have the floor

The voice of students – everywhere and by everyone
Since 1902, the Student Union at the Royal Institute of Technology (THS) has existed and has been actively engaged in with matters concerning students at KTH, which makes us Sweden’s oldest student union at a technical school. During all of our 116 years of existence so far, the focus has been on our students members and providing them with the best possible preconditions to make their time at KTH the best time in their lives, as they equip themselves with knowledge and experience for future challenges. The single most important function of the Student Union is to represent all KTH students – and we are extremely proud to now have the opportunity to make the voice of the students heard in the 2018 Annual Report.

Making the voice of the students heard is however not simply about writing this page here, but rather it is a central part of just about everything that happens at KTH. Something that is very easily forgotten is the unique environment that the institution of higher education constitutes, where students as co-participants are involved with and shape the activities of the University along with the faculty, administration and other staff. Our statutory right as students to be involved in the preparation and making of decisions promotes a diversified dialogue and a broader perspective in the ongoing development of the University. Without the students, there would be no university! It is the common goals of the University and the Student Union at the Royal Institute of Technology that both the educational programme and the student’s situation at KTH are undergoing constant improvement. Therefore it is with great pleasure that we participated in the development of new guidelines for student influence which strengthens and clarifies our rights to be represented, all the way from individual courses to KTH’s University Board. The present situation is that all parts of the University welcome their responsibility to let the voice of the students be heard, and listened to.

In order to ensure a fair and broad representation of all students in the University, in recent years THS has placed a special focus on internationalisation and gender equality, diversity and equal treatment (JML) issues. The number of international students at KTH has sharply increased in recent years, however we have seen that their possibilities to take part in both student life and the forums that exist in order to influence their education are considerably poorer than for Swedish students. This is a great challenge for us as a student union, with an extensive and multi-faceted range of activities that sometimes has an inherent resilience to sudden changes.

The language is the biggest barrier, and is a controversial and much debated issue in many places within THS, both centrally and in our sections. How do we find a balance between making it easy for students to become involved and at the same time giving those who are not fluent in Swedish a fair chance of being a part of the student life at KTH? Similar with the issue of the inclusion of international students, THS’s work on JML issues is aimed at provided more individuals the opportunity to find their place and to participate on equal terms. A close and rewarding collaboration with KTH’s Equality Office has clearly shown that the challenges and issues we work with have great similarities with the issues that are currently relevant at KTH and in society-at-large. THS’s work with these issues deals with challenging cultures and traditions in all parts of our Student Union. Via a norm-critical way of working, we can continue to further develop our activities with the goal that they must be inclusive and make student life joyful and developing for everyone.

Our greatest asset as a student union is our actively involved and dedicated members, dispersed throughout the programmes, sections and campuses. The involvement and engagement is most evident during the orientation reception periods, when over a thousand students organise themselves to welcome those newly admitted to KTH and member of THS. The mental and psychological health of the students is a particular priority issue for THS.

A warm and unreserved welcome of the newly admitted students is an essential important tool for creating the community and social support which is needed to promote well-being when the situation with studies becomes stressful and exhausting. To make connections and finding friends for life is the core of the orientation reception, and a rich social life is a prerequisite to being able to successfully deal with one’s studies at KTH. All KTH students and THS members, regardless of identity or origin, must have the same opportunities and possibilities to participate in the community. In this way, a fair representation is ensured in the voice of the students.

Emma Ingo, Chairperson of the Student Union at the Royal Institute of Technology
Education

First- and second-cycle education

Educational offerings

KTH’s range of educational courses and its educational programmes is characterised primarily by courses given as a part of a programme leading to an academic degree. Less than two percent of KTH’s total volume in education is given in the form of freestanding courses. The priorities that are made in the range of educational offerings are therefore made between programme and types of programmes. Prioritisations and assessments are based primarily on demand from the students, the needs of the labour market, and KTH’s particular expertise. Internationalisation is also a central goal that affects the educational offerings. Representatives of the labour market can be found in several of the strategic councils that exist within each School at KTH, who have the opportunity to express their express their perspectives and opinions there. External representatives are also present in the Faculty Council and the University Board. In these groups, regular discussions are held on which educational programmes are regarded as needed in the society and which are in demand by commercial enterprises, public authorities and organisations. More specific discussions are also conducted within the strategic partnerships that KTH maintains with a number of companies and organisations. Also refer to the Joint Collaborations section.

For 2018, KTH’s ceiling amount has increased. One explanation is that the investments in Södertälje, which was previously financed within the framework of existing ceiling amounts. Another further explanation is the Swedish Government’s extension of the education volume for engineering education and the Swedish Government’s investment in urban management. Since KTH already produces education in addition to what KTH receives compensation for, KTH plans as part of the agreement concerning investment in Södertälje, among other things, for virtually the same number of full-time student equivalents during 2019 as in 2018.

The Swedish Government’s investment in the built environment and construction of urban management in particular meets society’s intense demand for educated persons within this sector. KTH already has a considerable volume in education within the field. Dialogue with representatives of various stakeholders in the sector continuously takes place within the strategic councils that exist within the School of Architecture and the Built Environment. The strategic councils have external representation from i.a. the business sector and governmental authorities. The educational programmes within field of the built environment has a relatively low acceptance ratio due to applicants per available place and therefore KTH tries to also adapt the educational volumes in accord with that already in 2017, the programme leading a Master’s Degree in Architecture already obtained educational slots, which is in line with the Swedish Government’s investment.

The shortage of teachers is significant in certain scientific and technical subjects. KTH will therefore start up a programme leading to the Degree of Master of Science in Secondary Education in Södertälje in the autumn of 2019. In the recruitment work in preparation for the coming application for admissions round, among other programmes this educational programme will be prioritised. Special efforts are needed to make the educational programme more widely-known and attract a greater number of interested applicants. Prior to decisions concerning this educational programme, discussions have taken place together with companies in Södertälje and the Municipality of Södertälje.

The discussions with the municipality are of particular importance with regard to the need for places for the practical internship part of the teacher training programme.

KTH also responds to the great need for educated teachers by conducting, together with Stockholm University, supplementary teacher training. In 2015, KTH was commissioned to start up and conduct supplementary teacher training. The first round of the educational programme commenced in June 2016. In addition, KTH has received, also together with Stockholm University, the commission to start up supplementary teacher training for individuals with a doctoral degree. This educational programme commenced for the first time in January 2017. More information about this may be found in the section regarding supplementary teacher training.

KTH’s investment in Södertälje in sustainable production

In June 2014, an agreement was presented between KTH, the Swedish Government, the Municipality of Södertälje, Scania, AstraZeneca and the company Acturum was presented for an education and research initiative in Södertälje. The purpose of the initiative is, among other things, to strengthen the competitiveness of Swedish industry via cutting-edge education and research. The ultimate goal is to contribute to securing the future of the Swedish manufacturing industry. The agreement includes an investment in new educational programmes with the aim of doubling the number of educational places on the KTH campus in Södertälje over the long term.

In the agreement with the Swedish Government concerning the investment in KTH Södertälje, it states that KTH’s ceiling amount increases from 2018 in order to facilitate the expansion. The new courses are developed in close collaboration with the industry in Södertälje, and several of the courses are also carried out in close collaboration with the business community.

In autumn term 2018, the third batch in the programme leading to the Degree of Master of Science in Engineering with a major in Industrial Engineering and Sustainability, commenced their education, and at the end of 2018 there were 31 active students in the programme. The first two years, the programme was a specialisation in the programme leading to the Degree of Master of Science in Engineering with a major in Mechanical Engineering. From the autumn term of 2018, it is its own separate Master of Science in Engineering programme.

In the autumn term 2018, the second batch was admitted in
the newly started programme leading to the Degree of Master of Science in Engineering with a major in Industrial Engineering and Production Maintenance, and at the end of 2018, 33 students were active in the programme.

In the Autumn term 2019, an educational programme leading to a Degree of Master of Science in Secondary Education with a specialisation in technology, grades 7–9, commences. The programme will be given as a combination educational programme and will lead to the Degree of Master of Science in Secondary Education with a specialisation in technology and mathematics as well as a Degree of Bachelor of Science in Engineering. The programme is largely studied together with the major in innovation and design in the at the programme leading to the Degree of Bachelor of Science in Engineering with a major in mechanical engineering and with the scientific core of the education within existing supplementary teacher training.

In addition to the new programmes, KTH Södertälje accepts students to the programme leading to the Degree of Bachelor of Science in Engineering with a major in mechanical engineering as well as the access programme, Technical Preparatory Year and Technical Preparatory Term.

**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 youth in lower secondary schools as a target group. Recruitment work prioritises the personal encounter between representatives of KTH and potential students. This is accomplished primarily by approx. 45 “student ambassadors” who are KTH’s representatives in the interaction with upper secondary school pupils. These student ambassadors represent most of KTH’s degree programmes and campuses. And 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 specific information about the target group, as well as individual coaching.

In 2018, KTH’s student ambassadors held 110 student recruitment meetings with upper-secondary school classes in the form of study visits to KTH and visits to upper-secondary schools.

A target group survey shows that just over half of the students in the science and technology programme in year 3 with a minimum of a 16 merit rating in their upper secondary school grades have participated in personal meetings with KTH in one form or another.

It can be concluded based on the activity evaluations carried out, KTH meets with 35 percent of all pupils in year 3 in a science or technical programme at SACO’s Student Fair in Stockholm and almost as many, 33 percent, at the student ambassadors’ upper secondary school visits and visits to a KTH campus. A target group survey that was done on-site at the fair in Stockholm showed that of the upper secondary school students who are qualified for KTH studies, about 70 percent were interested in knowing more about KTH and KTH’s educational programmes.

The KTH website, course and programme offering catalogue and personal meetings, such as visits to upper secondary schools, are the most important channels for reaching the target audience with information prior to their selection of a programme. In order to establish opportunities to make KTH accessible to more people, irrespective of where they happen to live, KTH’s website together with other digital efforts, such as social media and student blogs, is a very important component.

In 2018, extensive work was done to make it possible 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 KTH’s website.

Each year, KTH organises an open house for the purpose of disseminating information about KTH’s educational programmes, on site in the University environment. The 2018 event attracted more than 1,400 visitors, and according to the visitor survey conducted, the vast majority reported that they felt they had received sufficient answers to their questions.

In addition, upper secondary students had the possibility to follow along with a student during their normal day’s activities and experience what it is like to be a student at the University. During the first few months of the spring term, some 350 3rd-year upper secondary students took advantage of this opportunity to learn more about KTH. Of them, roughly 50 percent were women.

Approximately one-half of KTH’s direct target audience, 3rd-year upper secondary students in science and technical programmes, are women. Women also account for approx. half of the participants in KTH’s student recruitment activities. According to KTH’s development plan for 2013–2017, the goal is also that the percentage of women among new students in the engineering programmes will increase. At present, the greatest challenge in terms of recruitment of incoming students is that certain specialisations and educational environments still have a distinct gender imbalance. The work of recruiting women has therefore to some extent been redirected towards the subject areas and programmes with the largest imbalance.
Over the past four years, KTH has conducted an initiative under the name “giants” for the purpose of increasing the number of women students in programmes in computer engineering, IT and electrical engineering via providing inspiration and more in-depth knowledge in the subject fields. In 2018, “giants” had 220 female participants and 72 of the participants had applied for one or more of the relevant educational programmes. 37 of these have already visited the event in 2017. During the years 2015–2017, an event referred to as “Tekla” was arranged for the purpose of raising interest in engineering among younger women. In 2017, around 400 participants ages 11–15 visited the event. In 2018, a number of smaller workshops were organized for a total of 60 participants aged 11-18, in connection with the Music Tech Fest event, which took place on KTH in September. The concept is under development and will in the future contain more targeted efforts for the target audience.

KTH works to increase knowledge and interest in technology, science and mathematics among young people. The hub of this work is Vetenskapens 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 primary school to upper secondary school visit the premises at AlbaNova or in the Bergius Botanic Garden to perform experiments or activities involving biology, physics, chemistry, mathematics or technology. Advanced teacher training in these subjects is also offered. Vetenskapens Hus also hosts a wide range of other initiatives with a focus on increasing knowledge and interest in technology, natural science and mathematics. These include, for instance, Technology Week, Researchers’ Night (on Fridays), First Lego League and Maths Coach on the Internet. Vetenskapens Hus hosts close to 80,000 visitors (pupils and teachers) each year.

Recruitment of students to KTH second-cycle study programmes

KTH’s Development Plan makes it clear that the recruitment of students must take place both nationally and internationally, and that international visibility is essential for KTH’s brand. A significant number of tuition paying students is a measure of KTH’s strong position internationally, and further efforts must be made to strengthen the quality within this area.

Focus during the year

During the year, focus was placed on financing opportunities for tuition paying students, for example by initiating and deepening the working relationship with foreign scholarships organisations and other funders. KTH presently has cooperation agreements with lpdp in Indonesia, Colfuturo and icetex in Colombia, Conicyt in Chile and Conacyt in Mexico. In cooperation with the companies SAAB, Bombardier and Scania, scholarships/educational grants were offered as a prize in a digital competition, the KTH Master’s Challenge. KTH has also launched a programme for company-financed scholarships, the KTH Global Talent Programme, which will provide an attractive way for companies to contribute with funding of students’ education, and at the same time establish contacts with the future member of the workforce. In order to facilitate further financing opportunities and streamline the management, internal processes have been developed and improved.

KTH has begun arranging web-based conferencing (webinars) in order to communicate in a sustainable and cost-effective manner, and to offer support to prospective students worldwide. The focus of the webinars has varied and examples of themes that have been dealt with are educational offerings, application and admission, housing and the orientation reception as well as student life in general. The webinars have attracted a large number of participants from all over the world and have been given high marks in evaluations by the target audience.

A project within the university administration has been carried out to coordinate and streamline the management of incoming inquiries from prospective students, both national and international. Prospective students should be offered a common entrance for questions concerning studies at KTH. Response times and service is to be quality assured to a greater extent.

During the year, KTH has implemented a Customer Relationship Management system (CRM) to manage, monitor and evaluate communication with prospective students in a more efficient and a manner better oriented towards the target audience.

A major survey, the International Student Survey, was conducted to identify and map out the students’ motives, preconditions and perspectives regarding communication channels when choosing to attend KTH. Both those who turned down their offer of admission as well as those who commenced their studies at KTH participated. The results will now be analysed and be the basis for future efforts and allocation of resources.

Activities to create better visibility and to recruit applicants

In 2018, KTH participated in a number of education fairs and university visits focusing on student recruitment in a wide range of countries, including India, China, Indonesia, Thailand, Vietnam, Malaysia, Myanmar, South Korea, Colombia, Mexico, Chile, Saudi Arabia and Turkey. KTH collects contact information at the fairs from potential students for further communication and evaluation.

In China, KTH primarily works within the framework of the cooperation agreements that have been entered into with dozens of selected universities. Regional coordinators visit the universities every year on a couple of occasions to present KTH and meet with applicants. The cooperation agreements mean that students can be admitted to a Swedish second-cycle study programme after three years of study in a normal four-year bachelor’s degree programme in China. Such an agreement also exists with one university in India.
KTH attaches special importance to engaging and educating foreign programme students as international student ambassadors. They have the task of responding to questions from prospective students, representing KTH within the framework of various types of digital communication, and acting as hosts when visits to the campus are made. During the year, even more student ambassadors were recruited than previously, which has led to that about 50 programmes leading to master’s degree now have an international student ambassador.

The digital communications in social media and on the Internet has been continuously developed in terms of content as well as choice of channels. Particular focus has been placed on Chinese channels in order to overcome communication barriers in the country, with a presence in Chinese social media such as Weibo, WeChat and Qq. In addition, the student ambassadors respond to questions from interested students and in addition, a number of international students share their experiences via means of blogs.

KTH work with agents in Turkey, Vietnam, Thailand and Indonesia. KTH has chosen to use recruitment agents in a few countries where there is a habit among the students to turn to an agent, as a complement to other efforts in these areas. All agents work on a commission basis with remuneration only for the fee paying students successfully recruit. Twelve of the registered newly beginning 1st year students autumn term 2018 were recruited via these agents.

Communication with applicants and accepted students

The recruitment work continues until the students commence their academic studies and therefore it is considered to be a priority to providing information and support to the accepted students right up to registration. The purpose of the activities is to strengthen the accepted students in their choice of KTH and to answer questions of an academic and practical nature prior to their travel to Sweden and commencement of studies.

During the year, digital newsletters were sent out to the international students throughout the process, and for the first time webinars were offered for practical preparations and related matters were offered. With the assistance of the international student ambassadors, KTH also telephoned all accepted students in connection with the sending of the admissions acceptance notification being sent out. Furthermore, KTH arranged about 20 preparatory seminars in ten countries where there were a large number of admitted students. In most cases these seminars were conducted in joint collaboration with other Swedish institutions of higher education or diplomatic missions abroad, and were combined with other activities in the region, such as university visits or meetings with scholarship organisations.

In collaboration with the Student Union at the Royal Institute of Technology (THS) KTH has organised arrival and introduction services available to all international students at the beginning of the spring and autumn term. During specially arranged orientation reception days, the students are met at Arlanda airport and transported to KTH Entré, where they can sign contracts for housing accommodations and receive information and other services. The introduction also includes informational meetings, a reception ceremony in Stockholm City Hall, and social activities organised by THS.

The students who have paid tuition fees are offered, in addition to the basic arrival and introduction service, i.a. a housing guarantee, primary health care free of charge, an expanded insurance coverage, a preparatory course in the English language, a preparatory course in the Swedish language, and membership in a sports facility. During 2018, KTH has undertaken initiatives providing new students more personal and individualised service than was the case previously. The staff at the Department of Student Services have met more than 1,900 students to guide them to the right contact with public authorities and institutions.

Demand for an education at KTH

The demand for an education at KTH leading to a professional degree remains very substantial, however has decreased a bit compared to the previous year. The number of first choice applicants for these programmes in 2018 totalled 5,595 (5,793). The number of student slots planned was 2,185 (2,155).

The most sought after courses were, as before, the programme leading a Master’s Degree in Architecture with 938 (908) first choice applicants and the programme leading to the Degree of Master of Science in Engineering with a major in Industrial Economics with 670 (721) first choice applicants. There was also great interest in the programmes Computer Science and Technology 665 (683) and Engineering Physics with 432 (438) first choice applicants. Constructional Engineering and Design saw most of the first choice applicants in the programmes leading to the Degree of Bachelor of Science in Engineering, with 257 (265).

In autumn 2014, KTH commenced its first first-cycle study programme with courses given in English, the first-cycle (Bachelor’s degree) programme in Information and Communication Technology. In 2018, the programme had 771 (597) first choice applicants, of whom 300 (231) were in the national admissions round and 471 (366) in the admissions round for courses given in English. This shows a great interest in courses given in English even at the undergraduate level (first-cycle courses and study programmes).

The number of applications for magister’s and master’s programmes is substantial this year as well. In connection with the introduction of tuition fees in 2011, the number of applicants drastically decreased, however since 2011 has increased from approx. 5,000 to just over 16,000 applicants in 2018.

Of the 16,208 (17,095) web registrations to the courses given in English in a second-cycle study programme starting the autumn term 2018, 12,560 (13,763) with an obligation to pay tuition fees, of whom 5,948 (5,574) paid the registration fee.
KTH coordinates the admission to the umbrella programme with eight different tracks given by EIT Digital within the framework of the European Institute of Innovation and Technology (EIT). Some of the admitted commence their studies at a university other than KTH, and some do not study at KTH at all but rather only at the partner university. A total of 1,831 (1,311) applications for the programme were received.

The access programme, qualifying Technical Preparatory Year and Technical Preparatory Term, had a total of 1,742 (1,861) first choice applicants in 2018. The programmes start both spring term and autumn term. The Technical Preparatory Year is a one-year qualifying education that is intended for students who have not met the full admission requirements for KTH’s educational programmes during their upper secondary school studies. The Technical Preparatory Year provides supplementary education at the upper secondary level in mathematics, physics and chemistry. It is also possible to apply only for the second term of the Technical Preparatory Year, which is particularly suitable for those who have attended the upper secondary school’s technology programme. Approved results in the qualifying Technical Preparatory Year or Technical Preparatory Term guarantees a place in one of KTH’s programmes leading to the Degree of Master of Science in Engineering or programme leading to the Bachelor of Science in Engineering.

All admissions to KTH’s educational programmes takes place in nationally coordinated admissions rounds in the NyA admissions system, which is administered by the Swedish Council for Higher Education (UHR). The admission to EIT Digital takes place in EIT’s own admissions system.

For the purpose of finding new markets, broadening the recruitment to the master’s degree programmes and contributing to an international environment, several study abroad programmes have been implemented and further developed. They are targeted at fee-paying students who are interested in studying at KTH for one term without it leading to an academic degree. Fifteen students were registered within the framework of the study abroad programme, in collaboration with the University of Chinese Academy of Sciences (UCAS).

Alternative selection

For autumn 2018 admissions, KTH used the mathematics and physics entrance exam as an alternative selection to the programmes leading to the Degree of Master of Science in Engineering with a major in in Engineering Physics, Electrical Engineering and Vehicle Engineering. The mathematics and physics entrance exam is designed and administered by Chalmers University of Technology, and has been used as a selection model for admission to the programmes leading to a master’s degree at KTH since 2011. Up to a maximum of one-third of the student slots for these programmes can be given to applicants with approved results on the mathematics and physics entrance exam. A minimum result must be achieved on the test in order to gain admittance. For the 2018 autumn term, 54 applicants for engineering physics, six for electrical engineering and three for vehicle engineering studies were admitted.

For autumn 2018 admissions, KTH has used the architectural entrance exam as a selection group for up to one-third of the student slots for the programme leading a Master’s Degree in Architecture. The outcome for the autumn term 2018 admissions was 56 admitted in the architectural entrance exam group in selection 1; the total number of admissions in selection 1 was 175.

Assessment and recognition of prior learning

During the year, KTH has led the project “Validation and Recognition in the Bachelor and Master of Science in Engineering Programmes,” which is a collaboration with Chalmers University of Technology, Linköping University and the University of Borås. The project which operates on behalf of the Swedish Council for Higher Education has the task of developing a proposal for the organisation for validation in programmes leading to the Degree of Bachelor of Science in Engineering both locally as well as for national collaborations, thereby creating a sustainable model for assessment and recognition in engineering degree programmes in Sweden. During the year, a process for assessment and recognition has been developed, along with a process and method of support for validation of specialist knowledge in engineering degree programmes has been developed. The project has also appointed ownership of the process and submitted it to management. A central entrance for applications with a specific e-mail address and a web page with information explaining the application process has been introduced. A central academic studies counsellor, based at KTH, has been hired. The work will continue in 2019 and is financed with remaining funds from 2018.

In parallel with the project, KTH also has its own process for assessment and recognition. Information about the possibility for applicants and prospective applicants to have their prior learning assessed for eligibility for studies at an institution of higher education can be found on KTH’s website. KTH also offers advance notice of the assessment and recognition of prior learning for admission and guidance in making an application of prior learning for transfer of academic credits.

During the year KTH has participated in conferences and seminars, arranged by the Swedish Council for Higher Education and others which aims to increase the expertise regarding the management of the assessment of prior learning. KTH has also conducted internal educational efforts relating to the assessment and recognition of prior learning, and has started up a focus group.

Beginners

In 2018, a total of 2,651 (3,473) beginners commenced their first year of studies in KTH’s educational programme leading to a professional degree, of whom 119 (107) were in the
programme leading to a Master’s Degree in Architecture, 1,877 (1,730) in the programmes leading to a Degree of Master of Science in Engineering, and 655 (636) in the programmes leading to the Degree of Bachelor of Science in Engineering. See Figure 2 for further details. The final two years of a Master of Science in Engineering degree programme is at the same time a master’s degree programme, which means that these five-year programme students are registered as a beginners in a master’s degree programme when they begin the fourth year.

The number of beginners in the master’s programmes was 2,472 (2,338). Of these, 1,168 (1,205) were new students in KTH’s master’s programmes, while 1,304 (1,133) were previously also students in a programme leading to the Degree of Master of Science in Engineering. The masters programmes had 85 (131) beginners.

Of the total number of beginners in 2018, 34 percent were women and 66 percent men. KTH highlights in the Development Plan for 2018-2023 that several educational programmes presently have a low proportion of women. In the activities plan for 2019, KTH presents a series of long-term initiatives in the quest for a better balance between women and men in KTH’s educational programme. Of the beginners in the programme leading to the Degree of Master of Science in Engineering, 34 (32) percent were women and 66 (68) percent were men in the autumn term 2018. Of the newcomers to the programmes leading to the Degree of Bachelor of Science in Engineering in 2018, 26 (26) percent were women and 74 (74) percent were men. However, the distribution between men and women differs sharply between the various programmes at KTH. See Figure 2 for the gender distribution within programme types and programmes, as well as Figure 1 for the course of development over the past 10 years.

The average age for beginners in the programmes leading to a Degree of Master of Architecture or Master of Science in Engineering in 2018 was 21 old years for women and 20 years old for men. For beginners in the programme leading to the Degree of Bachelor of Science in Engineering, the average age was 22 years old for both women and men. The average age, for both women and men, in magister’s and master’s degree programmes was 24 years old. For the technical preparatory programme, the average age was 21 years old for both sexes. It is the same levels as in 2017.

In addition to the admission of beginners in year 1, it is possible to begin in a latter part of an educational programme. 147 (161) new students commenced the latter parts of a programme leading to the Degree of Master of Science in Engineering, and 158 (170) began the latter parts of a magister’s or master’s degree programme.

The autumn term 2018 registered 672 (644) new tuition paying students at KTH, of whom 202 (212) were women and 470 (432) were men, which means that KTH continues to see a positive development since the requirement for tuition fees was initiated.

Figure 1

Gender structure – new female and male students 2009–2018
in percent

<table>
<thead>
<tr>
<th>Year</th>
<th>Bachelor of Science in Engineering, men</th>
<th>Master of Science in Engineering, men</th>
<th>Master of Science in Engineering, women</th>
<th>Bachelor of Science in Engineering, women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>80</td>
<td>70</td>
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<td>2014</td>
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<td>2015</td>
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<td>10</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>2016</td>
<td>10</td>
<td>0</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>2017</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>2018</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: Ladok

Of the paying students, 65 (74) had been awarded scholarships from Swedish or KTH-affiliated scholarship programmes: 41 (40) UHR scholarships, 2 (1) funded by ABB, 3 (3) funded by Ax:son Johnson, and 19 (30) via the Swedish Institute (SI).

Of the remaining 607 (570) tuition paying students, 90 (83) came via EIT Digital and 95 (71) came via EIT InnoEnergy.

In 2018, 658 (781) externally recruited programme 1st year students from EU/EEC/Switzerland, including Sweden, commenced their studies in a second-cycle study programme, of whom 250 (302) were women and 408 (479) were men.

In 2018, 738 (717) students started in the technical preparatory programme. Of these beginners, 33 (38) percent were women and 67 (62) percent were men. Of those who started in the preparatory programme in the autumn term of 2017 or the spring term of 2018, 37 (43) percent, or a total of 271 (269) students (35 percent women and 65 percent men), continued in a programme leading to the Degree of Bachelor or Master of Science in Engineering at KTH in 2018. The majority of those who continue their studies at KTH have done so in a programme leading to the Degree of Master of Science in Engineering.

Courses between upper secondary school and higher education for preparation for higher education studies

Online-based courses for the preparation for higher education studies have also been offered to students who intend to enter degree programmes in the field of technical studies and science in 2018. The courses are intended support beginners and to facilitate the transition from upper secondary school to studies in an institution of higher education. KTH works together with several other institutions of higher education in the courses for preparation for higher education studies in mathematics. As a result of the development of technology in the form of digitisation, a larger project has commenced to give the preparatory courses in a format similar to the concept of MOOC courses. The ongoing revisions means that
### Master of Architecture, Degree Programme 300 HE credits

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>119</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>107</td>
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</tbody>
</table>

<table>
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<th>2016</th>
<th>Proportion (%) of women/men</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>104</td>
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</tbody>
</table>

<table>
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<th>2015</th>
<th>Proportion (%) of women/men</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>106</td>
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</table>

### Master of Science in Engineering Degree Programme 300 HE credits

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>82</td>
<td>61/39</td>
</tr>
<tr>
<td>Engineering and Education</td>
<td>56</td>
<td>50/50</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>191</td>
<td>17/83</td>
</tr>
<tr>
<td>Design and Product Realisation</td>
<td>115</td>
<td>47/53</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>97</td>
<td>20/80</td>
</tr>
<tr>
<td>Energy and Environment</td>
<td>86</td>
<td>62/38</td>
</tr>
<tr>
<td>Vehicle Engineering</td>
<td>113</td>
<td>16/84</td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>159</td>
<td>36/64</td>
</tr>
<tr>
<td>Industrial Technology and Sustainability</td>
<td>33</td>
<td>39/61</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>73</td>
<td>21/79</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>159</td>
<td>18/82</td>
</tr>
<tr>
<td>Materials Design and Engineering</td>
<td>47</td>
<td>40/60</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>56</td>
<td>41/59</td>
</tr>
<tr>
<td>Media Technology</td>
<td>79</td>
<td>42/58</td>
</tr>
<tr>
<td>Civil Engineering and Urban Management</td>
<td>180</td>
<td>48/52</td>
</tr>
<tr>
<td>Engineering Physics</td>
<td>150</td>
<td>19/81</td>
</tr>
<tr>
<td>Engineering Chemistry</td>
<td>68</td>
<td>54/46</td>
</tr>
<tr>
<td>Open entrance</td>
<td>133</td>
<td>29/71</td>
</tr>
</tbody>
</table>

**SUB-TOTAL**: 1,877 | 34/66 |

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

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constructional Engineering and Design</td>
<td>185</td>
<td>33/67</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>157</td>
<td>15/85</td>
</tr>
<tr>
<td>Electronics and Computer Engineering</td>
<td>33</td>
<td>15/85</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>40</td>
<td>10/90</td>
</tr>
<tr>
<td>Industrial Technology and Production Maintenance</td>
<td>32</td>
<td>22/78</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>45</td>
<td>51/49</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>83</td>
<td>11/89</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>30</td>
<td>47/53</td>
</tr>
<tr>
<td>Engineering and Economics</td>
<td>50</td>
<td>46/54</td>
</tr>
</tbody>
</table>

**SUB-TOTAL**: 655 | 26/74 |

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

<table>
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<tr>
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<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
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</table>

**SUB-TOTAL**: 0 | 0 |

### Masters programmes

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters programmes 120 HE credits</td>
<td>2,472</td>
<td>33/67</td>
</tr>
<tr>
<td>of which within Master of Science in Engineering programmes</td>
<td>1,304</td>
<td>34/66</td>
</tr>
</tbody>
</table>

**SUB-TOTAL**: 2,577 | 34/66 |

### Bachelors programmes 180 HE credits

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>117</td>
<td>37/63</td>
</tr>
</tbody>
</table>

**SUB-TOTAL**: 117 | 37/63 |

### University Diploma programmes 120 HE credits

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45</td>
<td>33/67</td>
</tr>
</tbody>
</table>

**SUB-TOTAL**: 45 | 33/67 |

### Technical Preparatory Year, Technical Preparatory Semester 60/30 HE credits

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>738</td>
<td>33/67</td>
</tr>
</tbody>
</table>

**SUB-TOTAL**: 738 | 33/67 |

**TOTAL**: 6,210 | 34/66 |
the new variants have not yet been launched on a full scale and therefore the number of course participants during 2018 has been fewer than previously and that it is not possible to fully monitor the participation for 2018. The switchover to open courses also means that the students are no longer registered in Ladok. The work is expected to be completed in 2019, when efforts to disseminate information concerning these courses will also be resumed.

International mobility
KTH actively works to ensure that the students place, to a greater extent, part of their education abroad. The target according to KTH’s Development Plan is that a large proportion of the students are to study at least one term abroad within the framework of their education. In 2018, a total of 656 (667) students commenced studies abroad, which means a stable level (see Figure 3). Of the students traveling to study abroad, 51 (51) percent studied at a university outside the EU/EES/Switzerland. The most common countries for study abroad were Singapore, France, the United States, Australia and China (see Figure 4).

The work of reviewing the administrative processes for incoming and outgoing students has continued, and in connection with this, the Mobility Online system support has gradually been further developed. The system support also ensures that documentation is collected and is readily available.

As an integral part of the work to increase interest in and knowledge about exchange studies, KTH Global was organised for the seventh consecutive year. The event involves both the university administration and the KTH Schools, which for three days jointly work to inspire the students and provide them with additional information. This year, a number of foreign embassies were also represented at the fair. During the year, a number of other activities were arranged in order to provide information about exchange studies, for instance via the Internet and via direct meetings.

The interest in studying in Sweden as an exchange student at KTH is still great. During the year, 958 (937) foreign exchange students commenced studies at KTH. Within Europe, most students came from universities in Germany, France, Switzerland and Spain (see Figure 4). Of the incoming exchange students collectively, 39 (40) percent came from countries outside the EU/EES/Switzerland, with the vast majority of them from Singapore, the USA, China and Australia.

In addition to the exchange students, KTH has a relatively large group of incoming double-degree students in special cooperation agreements with universities in Europe and Japan. These students primarily study in a second-cycle study programme for one and a half to two years, and then receive a Degree of Master of Science in Engineering from KTH and an equivalent degree from their home university. The number of double-degree students who commenced studies at KTH during the year amounted to 142 (153). The interest among KTH’s students for double-degree studies remains weak: in 2018 no (prior year 1) student initiated double-degree studies abroad.

There are also opportunities for various types of international experience other than pure exchange studies. During the year, 63 (59) KTH students commenced Erasmus internships at companies or organisations in Europe. Many of those who travel are international master’s students. The most popular countries are Germany, the UK, Spain and Norway.

There is a continued great interest among KTH’s students for the SIDA funded scholarship programme Minor Field Studies (MFS). Over the course of 2018, KTH 70 MFS scholarships were awarded by the Swedish Council for Higher Education (UHR), which is an increase from the previous year. There were 70 applications, of which 65 (55) were granted. The most common countries for KTH MFS scholarships are Mozambique, Colombia and Kenya.

E-learning
KTH has the goal of becoming a leader in e-learning both in Vision 2027 and in the Development Plan for 2018-2023. Within this framework, KTH’s current digital learning environment is managed while several strategic initiatives are being implemented. KTH’s Canvas learning platform has been standardised one year after its introduction, and is used with 60 percent of KTH’s courses. Several parallel educational initiatives have been initiated where teachers can receive
support via web resources, by means of individual assistance concerning for instance how courses can be structured, about digital examinations, and how to produce their own educational video materials. One popular initiative is the “Lunch n’ learn” seminar series. This is arranged about once a month during term time and means that teachers can participate in seminars concerning course development in digital environments at lunch. It is possible to participate on-site, via live video, or by watching the video recording afterwards.

A project about course information commenced in the autumn of 2018 and continues into 2019. A key principle is that all information about courses is gathered in one place in KTH’s system.

In order to achieve the objective of becoming a leader in e-learning, KTH intends to intensify its investments in the production of digital courses and digital examinations. This is a work that commenced in 2018 with pilot studies in digital examinations. The goal is to develop and manage a leading digital learning environment and to get KTH’s teachers to use it. The process of change is done systematically and all development must be based on the needs of the activities in close connection with the research in digital learning that exists at KTH.

Integration initiatives

Since 2011 the courses to teach Swedish to engineers in Stockholm County, sfinx - Intensive Swedish for Engineers, has been a coordinated educational programme that is an integral part of KTH’s regular activities. The purpose is to facilitate entry into the labour market for graduate engineers who have immigrated to Sweden. sfinx is a collaboration between KTH, Järfälla Municipality, City of Stockholm, County Administrative Board in Stockholm County and Sveriges Ingenjörer - the Swedish Association of Graduate Engineers. For 18 months, the engineers can study Swedish, from the level Swedish for immigrants up to upper secondary level, and English. The students also receive information about the Swedish business community and practices, and the Swedish labour market. They participate in the programme without being registered in courses. They also have the opportunity to receive higher education credits within their engineering major at KTH in parallel with the opportunity to participate in a mentorship programme for which Sveriges Ingenjörer - the Swedish Association of Graduate Engineers is responsible.

Roughly 100 students participate in sfinx every year, and a total of nearly 1,000 students have participated in first-cycle and second-cycle study programmes. The reporting has been accomplished in the form of reports that are integrated into the Swedish teaching and have contributed to a grade in Swedish. One trend that has continued since 2016 is that the business community contacts sfinx to recruit individuals holding the relevant skills.

Since 2017, KTH has been conducting a Marianne and Marcus Wallenberg-funded project “Software Development Academy,” where new arrivals are quickly trained in
software development with new pedagogical methods and with far-reaching cooperation with the business community. In 2018, the project was granted additional support from the EU/EFS in the amount of SEK 16 million. So far, 113 participants from 30 countries have participated and the transition to gainful employment is 72 percent. In addition to grants to the educational programme itself, the EU/EFS also finances the possibility for a certain amount of research at the Software Development Academy. The aim of the research is to be better able to understand the mechanisms of success factors, the capability of higher education to develop skills and to disseminate knowledge about the project in the academic world. The project runs until 2022.

Bridging programme
Within the framework of the commission, KTH has planned and established supplementary courses for both architects and engineers.

The programme encompasses 120 higher education credits and includes general vocational preparatory courses such as subjects such as law, social studies, communication, sustainable development, entrepreneurship and leadership, as well as subject-specific advanced specialised courses or broadening courses. For the subject-specific courses, a study plan is drawn up that is designed with respect to existing skills, personal interests, the specific skills needs of the labour market in the professional or work area and an interview with the student. The purpose is that the individual who has completed an education abroad as an architect or an engineer is to receive the supplementary knowledge that is needed to be able to practice their profession in Sweden. The educational programme does not lead to an academic degree.

KTH has accepted students for the two variants of this programme both spring term 2018 and autumn term 2018. In 2018, a total of 26 architects/architecture students and 19 technical engineers/engineering students have started the courses and collectively the numbers are equivalent to 22 full-time student equivalents (FTSE).

Performance
The number of full-time student equivalents and annual performance equivalents in first-cycle and second-cycle study programmes in 2018 amounted to a total of 12,612 (12,476) and 10,449 (10,461), respectively. Some of the examinations for the autumn term is always late in December. For the outcome in 2018, this means that 3,42 annual performance equivalents registered in January 2018 belong to the examinations that took place in December 2017.

The degree of performance for first-cycle and second-cycle study programmes was 83 (84) percent, calculated as the number of annual performance equivalents in relation to the number of full-time students equivalents. The proportion of women of full-time student equivalents was 34 percent and the proportion of men was 66 percent, which is at the same level as in recent years. In the programme leading to the Degree of Master of Science in Engineering, the proportion of women was 33 percent and the proportion of men was 67 percent while the programme leading a Master’s Degree in Architecture had a reversed distribution with 58 percent women and 42 percent men. In the programme leading to a Degree of Bachelor of Science in Engineering, the proportion of women was 27 percent and the proportion of men 73 percent. The master’s degree programmes had 34 percent women and 66 percent men.

In addition to the deductions paid for grants, the tuition-paying students have generated 1,021 (856) full-time student equivalents and 872 (725) annual performance equivalents during 2018 (see Figure 11).

In total, KTH had 1,564 (1,171) tuition-paying programme students in 2018, of whom 467 were women and 1,097 were men. Of these, 221 (182) were scholarships funded by Swedish or KTH-affiliated scholarship programmes, which corresponds to about 14 percent of the total number of tuition-paying students. In addition, there were 37 tuition-paying students, of whom 13 were women and 24 were men, in freestanding courses. This means that the largest proportion of tuition-paying students are either paying themselves or financed by means of scholarship programmes which KTH does not have information about.

Degrees
Over the course of 2018, a total of 1,134 (1,161) Degrees of Master of Science in Engineering, 84 (88) Degrees of Master of Architecture (arkitektexamen), 738 (1,032) other Master of Science degrees (masterexamen) were awarded to students who did not also receive a Degree of Master of Science in Engineering (civilingenjörsexamen) at KTH and 273 (337) Degrees of Bachelor of Science in Engineering (högskoleingenjörsexamen). In total, KTH awarded 1,287 (1,864) Degrees of Master of Science (120 credits) (teknologiemagisterexamen) during the year. Of these, 549 (832) also received a Degree of Master of Science in Engineering in 2018 or earlier. A Degree of Master of Science (60 credits) (teknologiemagisterexamen) was awarded to 102 (136) students.

Of the 700 (1,112) Degrees of Bachelor of Science (teknologiekandidatexamen) awarded, 578 (926) have been earned by students in the Master of Science in Engineering programme and 37 (90) by the students in the programme leading a Master’s Degree in Architecture.

The trend with students earning more than one academic degree based on the same studies continues. In 2018, the proportion earned one or more additional degrees combined with a Degree of Master of Science in Engineering was 54 (68) percent.

The proportion of women among those graduating with a Degree of Master of Science in Engineering amounted to 34 (34) percent and the proportion of men 66 (66) percent. For
Figure 6
Full year students and full year performances 2009–2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Figure 6</th>
<th>Figure 7</th>
</tr>
</thead>
</table>

Source: Ladok

Figure 7
Full year students and full year performances, fee-paying students 2011–2018

Source: Ladok

<table>
<thead>
<tr>
<th>Year</th>
<th>Figure 6</th>
<th>Figure 7</th>
</tr>
</thead>
</table>

Source: Ladok

Figure 9
Full year students 2015–2018

<table>
<thead>
<tr>
<th>Programme</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Architecture, 270/300 HE credits</td>
<td>455</td>
<td>449</td>
<td>454</td>
<td>466</td>
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<tr>
<td>Master of Science in Engineering 270/300 HE credits</td>
<td>5,415</td>
<td>5,451</td>
<td>5,443</td>
<td>5,384</td>
</tr>
<tr>
<td>in addition, within Master programmes</td>
<td>2,120</td>
<td>2,053</td>
<td>1,938</td>
<td>1,865</td>
</tr>
<tr>
<td>Bachelor of Science in Engineering 180 HE credits</td>
<td>1,491</td>
<td>1,489</td>
<td>1,495</td>
<td>1,556</td>
</tr>
<tr>
<td>Bridging Teacher Education 90 HE credits</td>
<td>50</td>
<td>66</td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td>Subject Teacher Education in Technology, Secondary Education, 270 HE credits</td>
<td>1</td>
<td>100</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Masters Programmes 60/90 HE credits</td>
<td>88</td>
<td>106</td>
<td>117</td>
<td>102</td>
</tr>
<tr>
<td>Masters Programmes 120 HE credits</td>
<td>3,372</td>
<td>3,297</td>
<td>3,081</td>
<td>2,869</td>
</tr>
<tr>
<td>of which within Master of Science Engineering programmes</td>
<td>2,120</td>
<td>2,053</td>
<td>1,938</td>
<td>1,865</td>
</tr>
<tr>
<td>Bachelor Programmes 180 HE credits</td>
<td>259</td>
<td>255</td>
<td>270</td>
<td>294</td>
</tr>
<tr>
<td>Technical Preparatory Year, Technical Preparatory Semester 60/30 HE credits</td>
<td>613</td>
<td>577</td>
<td>619</td>
<td>693</td>
</tr>
<tr>
<td>University Diploma 120 HE credits, Applied Technology</td>
<td>71</td>
<td>68</td>
<td>71</td>
<td>77</td>
</tr>
<tr>
<td>Exchange students arriving at KTH</td>
<td>606</td>
<td>574</td>
<td>609</td>
<td>590</td>
</tr>
<tr>
<td>Courses</td>
<td>189</td>
<td>142</td>
<td>161</td>
<td>210</td>
</tr>
<tr>
<td>Total</td>
<td>12,612</td>
<td>12,476</td>
<td>12,349</td>
<td>12,244</td>
</tr>
</tbody>
</table>

Source: Ladok

Full year students (FYS) are defined as the number of students who have started studies on a course multiplied by the number of course higher education credits divided by 60.

Full year performance (FYP) is defined as the number of higher education credits gained on a course or sub-course divided by 60.

Proportion (%) of women/men
those graduating with a Degree of Master of Architecture, the proportion of women was 60 (58) percent and the proportion of men 40 (42) percent. See Figure 12 for the gender distribution within programme types and individual programmes.

KTH also awards master’s degrees jointly with other universities. The number of degrees awarded jointly with other universities in 2018 was 23 (21).

Career Support
KTH’s career activities are focused on providing support for students in their transition to a life in the workplace. Activities during 2018 have been individual career coaching for national and international students as well as lunch seminars and workshops on career development in English and Swedish, as well as the creation of a career web in English. Altogether, approximately 600 students have participated in the various activities. In 2018, students were also offered drop-in counselling in KTH Entré for career related issues.

Third-cycle education

Recruitment
The educational programme at the doctoral level at KTH is attractive, which means that many apply responding to calls for applications for slots for doctoral students. High competition for the student slots benefits the quality of the educational programme.

In 2018, at five occasions, KTH has carried out coordinated calls for applications of doctoral student slots in the daily press. The purpose of coordinated calls for applications is to make KTH visible both as a workplace and university and thereby increase the interest among prospective applicants.

In 2018, calls for applications for a total of 300 (209) slots for doctoral students were made. 16,170 individuals applied for one of these slots, of whom 3,501 were women, 12,552 were men, and 117 who did not state their gender. Recruitment to an educational programme leading to a doctorate also takes place without prior calls for applications. This applies in situations where funding for the studies consists of an educational grant, other employment position within the University, or and employment with an employer other than the University.

Admissions
In 2018, 307 (355) doctoral students were admitted. The proportion of women was 32 (28) percent and the proportion of men 68 (72) percent. Of the newly admitted doctoral students, nine percent were admitted with the goal of graduating with a Licentiate degree. And of these, 43 percent were women and 57 percent were men.

Of this year’s newly-admitted, 43 (39) doctoral students, of whom 28 percent are women and 72 percent are men, have their primary activities outside of the University and pursue doctoral studies within the framework of their employment (externally employed doctoral students). The employer may be either private or governmental.

Of those who were admitted to a programme at the doctoral level in 2018, 29 (34) percent, or 89 (121) individuals, have an academic degree from KTH. Among them, a Degree of Master of Science in Engineering is most common. Of the newly admitted in 2018, 51 (48) percent have an academic degree from a country other than Sweden.

Level of activity and financing of academic studies
Of the 1,934 doctoral students registered with some activity in third-cycle studies in 2018, 1,722 doctoral students had a degree of activity of at least 50 percent and 1,912 had a degree of activity of at least ten percent.

During 2018, employment as a doctoral student continued to be the predominant form of financing of studies. At year-end, 1,265, or 62 percent, of KTH’s doctoral students had this form of financing.
### First degrees 2015–2018

<table>
<thead>
<tr>
<th>Degree of Master of Architecture 270/300 HE credits</th>
<th>2018</th>
<th>Proportion (%) of women/men</th>
<th>2017</th>
<th>Proportion (%) of women/men</th>
<th>2016</th>
<th>Proportion (%) of women/men</th>
<th>2015</th>
<th>Proportion (%) of women/men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>84</td>
<td>60/40</td>
<td>88</td>
<td>58/42</td>
<td>42</td>
<td>62/38</td>
<td>105</td>
<td>46/54</td>
</tr>
<tr>
<td>Degree of Master of Science in Engineering 270/300 HE credits</td>
<td>1,134</td>
<td>34/66</td>
<td>1,161</td>
<td>34/66</td>
<td>913</td>
<td>36/64</td>
<td>1,316</td>
<td>29/71</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>49</td>
<td>59/41</td>
<td>48</td>
<td>73/27</td>
<td>32</td>
<td>66/34</td>
<td>43</td>
<td>58/42</td>
</tr>
<tr>
<td>Engineering and Education</td>
<td>34</td>
<td>38/62</td>
<td>24</td>
<td>50/50</td>
<td>22</td>
<td>23/77</td>
<td>24</td>
<td>67/33</td>
</tr>
<tr>
<td>Computer Science and Engineering</td>
<td>83</td>
<td>18/82</td>
<td>97</td>
<td>10/90</td>
<td>65</td>
<td>6/94</td>
<td>168</td>
<td>13/87</td>
</tr>
<tr>
<td>Design and Product Realisation</td>
<td>66</td>
<td>55/45</td>
<td>108</td>
<td>56/44</td>
<td>62</td>
<td>48/52</td>
<td>76</td>
<td>55/45</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>42</td>
<td>5/95</td>
<td>46</td>
<td>7/93</td>
<td>50</td>
<td>20/80</td>
<td>85</td>
<td>13/87</td>
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<tr>
<td>Energy and Environment</td>
<td>59</td>
<td>3/77</td>
<td>64</td>
<td>58/42</td>
<td>31</td>
<td>68/32</td>
<td>15</td>
<td>53/47</td>
</tr>
<tr>
<td>Vehicle Engineering</td>
<td>115</td>
<td>18/82</td>
<td>98</td>
<td>19/81</td>
<td>80</td>
<td>19/81</td>
<td>120</td>
<td>16/84</td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>123</td>
<td>18/82</td>
<td>101</td>
<td>19/81</td>
<td>106</td>
<td>23/77</td>
<td>118</td>
<td>25/75</td>
</tr>
<tr>
<td>Information and Communication Technology</td>
<td>32</td>
<td>19/81</td>
<td>48</td>
<td>13/87</td>
<td>31</td>
<td>27/73</td>
<td>36</td>
<td>11/89</td>
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<td>Surveying</td>
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<td>0</td>
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<td>0</td>
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<tr>
<td>Mechanical Engineering</td>
<td>122</td>
<td>18/82</td>
<td>101</td>
<td>19/81</td>
<td>109</td>
<td>23/77</td>
<td>145</td>
<td>25/75</td>
</tr>
<tr>
<td>Materials Design and Engineering</td>
<td>32</td>
<td>28/72</td>
<td>24</td>
<td>50/50</td>
<td>22</td>
<td>50/50</td>
<td>24</td>
<td>67/33</td>
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<tr>
<td>Materials Engineering</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Medical Engineering</td>
<td>33</td>
<td>47/53</td>
<td>30</td>
<td>47/53</td>
<td>16</td>
<td>44/56</td>
<td>27</td>
<td>59/41</td>
</tr>
<tr>
<td>Medical Technology</td>
<td>46</td>
<td>44/56</td>
<td>59</td>
<td>44/56</td>
<td>29</td>
<td>59/41</td>
<td>51</td>
<td>39/61</td>
</tr>
<tr>
<td>Microelectronics</td>
<td>4</td>
<td>40/60</td>
<td>6</td>
<td>40/60</td>
<td>4</td>
<td>40/60</td>
<td>6</td>
<td>40/60</td>
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<tr>
<td>Civil Engineering and Urban Management</td>
<td>138</td>
<td>41/59</td>
<td>137</td>
<td>47/53</td>
<td>119</td>
<td>51/49</td>
<td>122</td>
<td>41/59</td>
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<td>Engineering Physics</td>
<td>105</td>
<td>14/86</td>
<td>111</td>
<td>18/82</td>
<td>85</td>
<td>27/73</td>
<td>110</td>
<td>22/78</td>
</tr>
<tr>
<td>Engineering Chemistry/Chemical and Chemical Engineering/Chemical Science and Engineering</td>
<td>35</td>
<td>69/31</td>
<td>46</td>
<td>39/61</td>
<td>42</td>
<td>50/50</td>
<td>69</td>
<td>49/51</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not within programme/specialisation</td>
<td>16</td>
<td>38/62</td>
<td>10</td>
<td>30/70</td>
<td>6</td>
<td>50/50</td>
<td>20</td>
<td>20/80</td>
</tr>
<tr>
<td>Degree of Bachelor of Science in Engineering 180 HE credits</td>
<td>273</td>
<td>26/74</td>
<td>337</td>
<td>33/67</td>
<td>214</td>
<td>25/75</td>
<td>358</td>
<td>23/77</td>
</tr>
<tr>
<td>Degree of Master of Science</td>
<td>49</td>
<td>45/55</td>
<td>26</td>
<td>50/50</td>
<td>12</td>
<td>8/92</td>
<td>0</td>
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</tr>
<tr>
<td>in Secondary Education, 225 HE credits, 2 teaching subjects</td>
<td>8</td>
<td>75/25</td>
<td>2</td>
<td>50/50</td>
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<tr>
<td>in Upper Secondary Education, 210 HE credits, 1 teaching subject</td>
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<td>6</td>
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</tr>
<tr>
<td>in Upper Secondary Education, 300 HE credits, 2 teaching subjects</td>
<td>38</td>
<td>39/61</td>
<td>18</td>
<td>53/47</td>
<td>12</td>
<td>8/92</td>
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</tr>
<tr>
<td>Degree of Master of Science 120 HE credits</td>
<td>1,287</td>
<td>36/64</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>
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<tr>
<td>of which also graduated as a Master of Science in Engineering 1)</td>
<td>530</td>
<td>34/66</td>
<td>832</td>
<td>38/62</td>
<td>494</td>
<td>31/69</td>
<td>580</td>
<td>33/67</td>
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<tr>
<td>of which joint degree</td>
<td>23</td>
<td>30/70</td>
<td>21</td>
<td>24/76</td>
<td>15</td>
<td>20/80</td>
<td>25</td>
<td>8/92</td>
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<tr>
<td>Degree of Master of Science 60 HE credits 2)</td>
<td>102</td>
<td>63/37</td>
<td>136</td>
<td>50/50</td>
<td>70</td>
<td>43/57</td>
<td>106</td>
<td>43/57</td>
</tr>
<tr>
<td>Degree of Master of Science 240/270 HE credits</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>25/75</td>
<td>28</td>
<td>25/75</td>
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<tr>
<td>Master Degree 60/90 HE credits 2)</td>
<td>1</td>
<td>0/100</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0/100</td>
<td>9</td>
<td>44/56</td>
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<tr>
<td>Degree of Bachelor of Science 180 HE credits</td>
<td>700</td>
<td>37/63</td>
<td>1,112</td>
<td>39/61</td>
<td>739</td>
<td>40/60</td>
<td>873</td>
<td>37/63</td>
</tr>
<tr>
<td>University Diploma 120 HE credits</td>
<td>28</td>
<td>25/75</td>
<td>27</td>
<td>22/78</td>
<td>21</td>
<td>33/67</td>
<td>37</td>
<td>35/65</td>
</tr>
</tbody>
</table>

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

Source: Ladok
Of those who had a doctoral position, 30 (30) percent were women and 70 (70) percent were men. Of the students in a third-cycle study programme, 15 percent financed themselves by means of paid work connected with the educational programme (externally employed doctoral students), four percent by means of other employment at the University, and twelve percent by means of full-time or part-time scholarships. Six percent finance, on a full or part-time basis, their studies in another way. Many of the doctoral students who have their studies funded via scholarships receive these via KTH’s joint collaboration with the China Scholarship Council.

KTH’s doctoral programmes

The doctoral programmes were established in 2011 and today there are 31 doctoral programmes. All 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 secure the quality of the educational programme via an organised structure of studies.

In order to establish a doctoral programme, a number of quality requirements are set with regard to purpose, target group and contents, and other related considerations. At KTH, since 2016 a review of general syllabi for third-cycle programmes for subjects at the doctoral student level and programme descriptions for doctoral programmes is underway. More information about this may be found in the Quality Assurance Work section.

Student mobility within the programmes at the doctoral level

The international feature of KTH’s educational programmes at the doctoral level is great. Statistics Sweden requests information, on behalf of the Swedish Higher Education Authority, concerning stays abroad for those receiving doctoral degrees or licentiate degrees during the past year. The latest survey, conducted in 2017, showed that 18 percent of the newly graduated students had spent time abroad within the framework of their educational programme. KTH should improve the documentation of doctoral students’ stays abroad. There is also room for more doctoral students to spend time abroad during their course of studies.

Degrees

In 2018, 276 (307) doctoral degrees were awarded and 65 (71) licentiate degrees were awarded. Of the doctoral degrees were awarded, 30 (32) percent were women and 70 (68) percent were men. Of those who completed the licentiate degree, 37 (25) percent were women and 63 (75) percent were...

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<thead>
<tr>
<th>New students per research field</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
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<tr>
<td></td>
<td>2018</td>
<td>2017</td>
<td>2016</td>
<td>2015</td>
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<tr>
<td>Biological Sciences</td>
<td>2</td>
<td>100/0</td>
<td>5</td>
<td>20/80</td>
</tr>
<tr>
<td>Computer and Information Science</td>
<td>55</td>
<td>33/67</td>
<td>45</td>
<td>20/80</td>
</tr>
<tr>
<td>Economics and Business</td>
<td>1</td>
<td>0/100</td>
<td>7</td>
<td>43/57</td>
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<tr>
<td>Electrical Engineering, Electronic Engineering</td>
<td>45</td>
<td>29/71</td>
<td>54</td>
<td>19/81</td>
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<tr>
<td>Philosophy, Ethics and Religion</td>
<td>1</td>
<td>0/100</td>
<td>1</td>
<td>0/100</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>33</td>
<td>27/73</td>
<td>24</td>
<td>29/71</td>
</tr>
<tr>
<td>History and Archaeology</td>
<td>6</td>
<td>17/83</td>
<td>2</td>
<td>0/100</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>6</td>
<td>50/50</td>
<td>7</td>
<td>57/43</td>
</tr>
<tr>
<td>Industrial Biotechnology</td>
<td>18</td>
<td>22/78</td>
<td>23</td>
<td>48/52</td>
</tr>
<tr>
<td>Chemical Sciences</td>
<td>10</td>
<td>30/70</td>
<td>11</td>
<td>45/55</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>15</td>
<td>53/47</td>
<td>30</td>
<td>37/63</td>
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<td>Arts</td>
<td>1</td>
<td>100/0</td>
<td>1</td>
<td>0/100</td>
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<tr>
<td>Mechanical Engineering</td>
<td>32</td>
<td>38/62</td>
<td>61</td>
<td>25/75</td>
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<tr>
<td>Mathematics</td>
<td>12</td>
<td>50/50</td>
<td>9</td>
<td>33/67</td>
</tr>
<tr>
<td>Materials Engineering</td>
<td>37</td>
<td>16/84</td>
<td>43</td>
<td>21/79</td>
</tr>
<tr>
<td>Medical Engineering</td>
<td>3</td>
<td>33/67</td>
<td>1</td>
<td>100/0</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>2</td>
<td>0/100</td>
<td>2</td>
<td>50/50</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>23</td>
<td>43/57</td>
<td>25</td>
<td>32/68</td>
</tr>
<tr>
<td>Educational Sciences</td>
<td>5</td>
<td>20/80</td>
<td>4</td>
<td>25/75</td>
</tr>
<tr>
<td>Total new research students</td>
<td>307</td>
<td>32/68</td>
<td>355</td>
<td>28/72</td>
</tr>
<tr>
<td>Total number of students, registered</td>
<td>1,934</td>
<td>30/70</td>
<td>2,000</td>
<td>30/70</td>
</tr>
</tbody>
</table>

Source: Ladok
men. Of this year’s doctoral degrees, 9 (10) were awarded jointly with other universities.

To earn a licentiate degree as a stage in one’s education at the doctoral level, and thereby obtain a natural validation of studies completed so far, remains to be relatively common at KTH. Of the doctoral degrees awarded in 2018, 24 (31) percent of the students have previously earned licentiate degree. KTH’s assessment is that a licentiate degree such as a Degree of Licentiate of Science is highly relevant to employment in industry.

The net time as a doctoral student for doctoral students who graduated in 2018 was 4.3 (4.3) years for the doctoral degree, and 2.6 (2.6) years for the licentiate degree. For a licentiate degree, women have a shorter net time spent as a doctoral student than men; and for a doctoral degree men have a shorter time spent as a doctoral student than women. The calculations of the time spent as a graduate student are made according to the procedures provided by the Ladok student registry.

National collaborations

Prerequisites for educational collaborations

According to KTH’s Development Plan 2018-2023, KTH will deepen and expand its international partnerships. Joint collaborations will contribute to KTH’s development in terms of both education and research. KTH has a large number of educational collaborations, both national and international. KTH has developed an internal regulatory framework and support documents and procedures that are used in the planning of educational collaborations. The preparatory group for educational collaborations, which has been active since 2015, has developed extensive knowledge concerning the preconditions for and situation with educational collaborations, and offers support to KTH’s Schools.

Teacher education programmes

Master of Science in Engineering and Education

The educational programme in engineering and education has been given since 2011 in cooperation with Stockholm University (SU). The programme leads to both a Degree of Master of Science in Engineering as well as a Degree of Master of Science in Secondary Education for work in the field of mathematics plus one of the subjects of physics, chemistry and technology. KTH has degree-awarding powers for both degrees. In autumn 2018, the programme had 83 first choice applicants and 526 applicants in total. 56 students commenced the programme, of whom 50 percent were women and 50 percent were men. During 2018, 34 students graduated from the programme, of whom 38 percent were women and 62 percent were men. Three of these students have completed the educational programme in engineering and education which was offered in 2002-2010. This was an educational programme based on a commission from the Swedish Government (U2002/1041/uh). KTH did not have degree-awarding powers for the Degree of Master of Science in Secondary Education during the years this programme was being offered, but rather those who complete the programme will obtain a Degree of Master of Science in Secondary Education from SU and a Degree of Master of Science in Engineering from KTH.

All students in the engineering and education programme have mathematics as their first teaching subject. During the first year of the programme, a joint foundation is given and the students will be able to be tested the other subject fields that are included in the programme (physics, chemistry and technology with a specialisation in information and communication technology or a specialisation in energy and the environment). Before starting the second year, they freely choose between four majors (specialisations) that offer the second subject field. In connection with the choice of major the students receive...
information concerning that demand for teachers in all these subject fields is strong. The largest teacher shortage is in chemistry and technology. As a consequence of the shortage of teachers is that since 2017 it has been difficult to find sufficient places for practicum internships in upper secondary schools, in particular in the field of technology but this year also in mathematics. Therefore in 2018 there were five students in engineering and 13 students in mathematics who were placed in the lower secondary school – grades 7–9.

Degree of Master of Science in Secondary Education Programme

In 2018, the development of the Degree of Master of Science in Secondary Education and university engineer educational programme continued. The educational programme, which according to plan is to start the autumn term 2019, comprises 270 credits. It will lead to two different academic degrees, a Degree of Master of Science in Secondary Education with a focus on work in the lower secondary school grades 7–9 in the fields of technology and mathematics and a Degree of Bachelor of Science in Engineering. The educational programme will include four years of full-time studies including two summer terms and will be located at both KTH Södertälje and KTH Campus.

Bridging teacher education programme

The supplementary teacher training educational programme (KPU) is comprised of 90 higher education credits and leads to a Degree of Master of Science in Upper Secondary Education or the Degree of Master of Science in Secondary Education lower secondary school grades 7–9 in for teaching in one or more of the subject fields physics, chemistry, mathematics or technology. In order to be admitted to the programme, it is required that one has sufficient academic qualifications in one or more of these subject fields. Supplementary teacher training at KTH commenced for the first time in June 2016. The programme is given on partial distance, with teaching at KTH a few days per month. Other time is devoted to self-study and teaching via a web platform. Some parts of the teacher training programme are given by SU. The programme is also in progress during the summer months, which means that a student who starts in June can be a finished teacher at the end of August the following year. One-third of the educational programme consists of an on-site internship at a school where they participate in the daily work under supervision. In June 2018, 57 students commenced their studies.

KPU for individuals with a doctoral degree is operated by KTH and SU jointly and leads to a joint degree. The programme is part of a project that runs in 2016–2021 and aims to educate 250 specialist subject teachers during the period. Other participating institutions are Karlstad University and Umeå University. Those who are admitted to the programme have the opportunity to receive a special educational programme financial allowance during their studies. The number of student slots in the educational programme is governed by the allocation of educational grants which is limited to 50 students per year. Of these, 18 can be admitted in Stockholm.

The programme encompasses 90 credits and runs over twelve months with an accelerated pace of study. Prior to the commencement of the educational programme in January 2018, just under 300 first choice applicants (of whom just under half met the eligibility requirements) applied for 18 planned student slots. Of these, 16 were still active in the programme at the end of the year.

Joint collaborations with university colleges of fine, applied and performing arts

KTH is working to develop the joint collaborations with university colleges of fine, applied and performing arts, in particular Konstfack - University of Arts, Crafts and Design. In 2011, a letter of intent was signed between KTH and Konstfack concerning in-depth cooperation in education and research. In 2013, a doctoral programme was established at KTH, where Konstfack is responsible for a significant part of the educational programme. The educational programme focuses on the intersection of art, technology and design. The first doctoral students were admitted in 2014. The subject of art, technology and design is included in the Swedish Higher Education Authority’s evaluation the doctoral level education within the field of design 2018. The results of the evaluation will be presented in 2019.

In addition, in 2017, a number of teachers working at the Royal College of Music in Stockholm have been attached to KTH for doctoral studies. In order to offer doctoral students, academic supervisors and researchers a good common environment, a centre of excellence will be established in 2019 in the collaboration between KTH, the Royal College of Music, Stockholm University of the Arts and Konstfack. During 2016–2018, a vision and organisational plan have been developed for this centre of excellence.

Licentiate education in collaboration with external stakeholders

KTH’s graduate school, Professional Licentiate of Engineering School (PLEng) offers a two-year licentiate degree as a goal and is conducted in close cooperation with the business community and other external stakeholders. The graduate research school is primarily targeted at professionals who want to train for leading positions in research and development. In 2017, the graduate research school switched to permanent activities at KTH. In 2018, five of the graduate research school’s doctoral students received a licentiate degree.

Other joint collaborations

In January 2011, KTH and Mid Sweden University reached an agreement to jointly strengthen the educational programme leading to the Degree of Master of Science in Engineering. The agreement has been extended and is now remains in effect until 2019. The collaboration means that students, after
the first three years of the Degree of Master of Science in Engineering programme which Mid Sweden University is responsible, can continue on in certain programmes leading to a master’s degree at KTH. The autumn term 2018 began 15 (to) students from Mid Sweden University’s began a master’s degree programme at KTH.

KTH and SU entered into an agreement in 2012 on joint educational programme at the master’s level in mathematics, which leads to a joint degree. In the autumn of 2018, 40 (19) students commenced the programme and three students graduated with a degree.

A three-party cooperation in the educational programme between KTH, Karolinska Institutet (KI) and SU was established in 2014 with the starting point from Science for Life Laboratory in Stockholm. The educational collaboration takes place within the framework of a master’s degree programme leading to a joint degree. The first students started in autumn 2015. In the autumn of 2018, 32 (23) students commenced the programme and 13 graduated with a degree.

Ever since 2014 KTH and KI have been operating a joint educational programme at the doctoral level in medical technology. The collaboration leads to a joint degree. In 2018, three doctoral students were admitted. No doctoral degrees were awarded during the year within the collaboration.

International collaborations

Strategic collaborative partners and networks

In 2018 KTH has been engaged in active collaboration with five strategic partner universities: the University of Illinois at Urbana-Champaign in the United States, Nanyang Technological University in Singapore, Shanghai Jiao Tong University in China, Hong Kong University of Science and Technology in Hong Kong and the University of Tokyo in Japan. Joint initiatives have been initiated within both education and research. Experience has clearly shown that financing for the start of joint projects has a good effect. KTH granted funding for 18 projects in cooperation with Shanghai Jiao Tong University in 2018 and also granted funding for mobility for eight academic researchers in the collaboration with the University of Tokyo.

An interdisciplinary workshop in collaboration with the University of Tokyo was conducted in October in Tokyo. A total of about 80 academic researchers and doctoral students from different scientific fields at Karolinska Institutet, KTH, Stockholm University and the University of Tokyo worked on different perspectives on sustainable development. The purpose of the activity was primarily to increase the contact area for young academic researchers at the various universities.

In 2018 KTH has continued to engage in the cesaer, Conference of European Schools for Advanced Engineering and Education network. 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 in matters related to European research funding and issues within Open Science. KTH’s President is the First Vice Chairman of the cesaer Governing Board.

Much work has been done in the Nordic Five Tech (N5T) strategic alliance during the year to improve the information being disseminated concerning N5T’s joint master’s degree programme. In addition, a working group has been working with support for research applications. The focus has primarily been on identifying areas where joint applications can be made.

KTH participates in the Deans Forum network together with, among others, the University of Cambridge, the University of California, Oxford University and the University of Tokyo. Within Deans Forum, the focus has been on collaborations between universities and business enterprises. The purpose has been to develop mobility for students and academic researchers by offering internships at companies. KTH arranges internships in collaboration with Scania. Within the European network CLUSTER, the Consortium Linking Universities of Science and Technology for Education and Research, KTH coordinates the Grants and Applications Support Team subgroup. During the year, it has supported joint project applications within Erasmus+ and has established a framework for international educational weeks in various areas for the staff of member university. A new project, redeem2, which is a strategic partnership within Erasmus+, has been granted funds during the year. The project is coordinated by KTH. The purpose of the project is to learn from the experiences from international master’s degree programmes, where the students receive an academic degree at two universities, and put this to good use in order to develop even more attractive programmes in the future. Special focus is on the students’ employability after the studies.

Within the Magalhães network, which consists of 37 universities in Latin America and Europe, together with the Instituto Superior Técnico, Lisbon in Portugal, KTH co-ordinates the project group that promotes joint project applications for external financing, including in Erasmus+. Included among the network’s ambitions is to expand to also encompass joint doctoral programmes.

European Institute of Innovation and Technology, EIT

KTH is the main partner in five of a total of eight knowledge and innovation groups (KIC) in the fields of ICT (EIT Digital), Energy (EIT InnoEnergy), Materials (EIT Raw Materials), Health (eHealth) and Transport Systems (EIT Urban Mobility). Digital and InnoEnergy have been running since 2010 while Raw Materials and Health were established in 2015. Urban Mobility is a brand new KIC that was authorised in December 2018.

The commitment within one is strategically important for KTH and a tool for promoting KTH researchers’ networks and
### Doctorate and licentiate degrees 2015–2018

**Doctorate degrees per research field**

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<tbody>
<tr>
<td>Total</td>
<td>276</td>
<td>307</td>
<td>279</td>
<td>328</td>
<td>317</td>
<td>382</td>
<td>279</td>
<td>328</td>
</tr>
<tr>
<td>Of which joint degree</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>4</td>
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**Licentiate degrees per research field**

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</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>65</td>
<td>71</td>
<td>100</td>
<td>328</td>
<td>317</td>
<td>382</td>
<td>279</td>
<td>328</td>
</tr>
</tbody>
</table>

Source: Ladok
collaboration with European research groups and industrial partners. The networks enable an increased capacity for strong EU applications and a higher degree of EU funding for KTH. In addition, it offers many opportunities to renew KTH’s own core activities in both education and research.

KTH’s primary commitment in the field of EIT Digital is since its inception the master’s school which is one of the flagship projects. With regard to innovation projects, increased demands on industrial connection and product-related content have made it more difficult for KTH’s academic researchers to become involved. However, KTH is still one of the largest parties within EIT Digital. Locally in Stockholm, EIT Digital arranged several events in 2018 where KTH participated with students, teachers and researchers in collaboration with industry and start-ups.

Within EIT InnoEnergy, the number of innovation projects for KTH’s part remains low. On the educational programme side, KTH coordinates two programme leading to a master’s degree and is involved in another three. There are several good examples of start-up companies founded by KTH academic researchers or students who have gone further in their development and received attention both nationally and internationally.

Within EIT Health, KTH’s involvement in 2018 increased, especially within the education projects. Several new projects that were decided upon during the year will start in early 2019. The majority of these projects are based at KTH in Flemingsberg as part of a strategic advance in the area.

**Erasmus+**

In the 2018 call for proposals within Erasmus+, KTH was awarded a total of 11 projects as coordinator or partner, which is a bit fewer than the previous year.

In the area of capacity building, KTH will participate in six new projects as partners. These new projects have a geographical dispersion that includes North Africa, the Middle East, Latin America and Asia. In total, KTH participates in 33 (26) projects within Erasmus+ capacity building, four of whom are coordinators. The projects concern developing new courses in technology, environment and sustainable development, e-learning, smart campuses, geographical information systems, business systems and development of infrastructure for support for academic researchers, students, innovations and university administration. As in previous years, KTH also received a large number of scholarships for mobility within Europe for studies, internships and staff exchanges.

KTH is part of 10 (5) strategic partnerships with a focus on entrepreneurship, joint education, gender balance in science and technology educational programmes, the value of international student exchanges and the further development of doctoral studies.

A total of 20 (151) Erasmus Mundus Joint Master’s students were registered in 2018. The five doctoral programmes within Erasmus Mundus continue without new admissions with annual defences of doctoral dissertations up to year 2020. KTH also participates as a partner in an Erasmus Mundus joint master’s degree programme starting in autumn 2018.

**KTH Global Development Hub**

KTH Global Development Hub (GDH) supports the development of challenge-driven education in KTH and partner universities in eastern and southern Africa. Challenge-driven education is used primarily in project courses where the students work towards solutions to locally formulated social challenges that are related to the UN’s sustainability goals. The purpose is to create skills in innovative techniques competence and innovation projects by contributing relevant solutions that are also implemented in society.

**Marie Skłodowska-Curie**

Marie Skłodowska-Curie is a part of the EU Horizon 2020 framework programme, and is the most important mobility programme for doctoral students and academic researchers. KTH’s researchers have been invited to a large number of applications within Marie Skłodowska-Curie in 2018. In 2018, a project with KTH was granted as coordinator, and six (five) new projects with KTH as participants in MSCA Innovative Training Networks. Within the MSCA Individual Fellowships, six new post doctors to KTH. In total, KTH participates in more than 45 (40) projects within the programme.

**Linnaeus-Palme**

Linnaeus-Palme is a SIDA-financed exchange programme with the focus on stimulating bilateral exchanges between universities and other educational institutions in Sweden and developing countries. KTH applied for three (four) Linnaeus Palme projects for 2018, of which all three (two in the prior year) were approved and funding has been awarded for student and teacher exchanges in the fields of polymer engineering, energy engineering and electrical engineering.

**China Scholarship Council**

During the year, eight doctoral students with a scholarship from the China Scholarship Council (CSC) were admitted to KTH. This is a sharp decrease compared to previous years, which is due to the change in the Swedish Higher Education Ordinance regarding doctoral student funding for doctoral students (which came in to effect force for doctoral students admitted after 1 July 2018).
Research

Objectives
According to the Development Plan 2018-2023, KTH is to be characterised by world-leading research. Applied research is to be strengthened and given greater depth by means of curiosity-driven basic research and interdisciplinary/multidisciplinary collaborations. The innovative and cutting edge research that is being conducted in a number of fields is to be highlighted to a greater extent both externally and internally. Relevant and appropriate infrastructure is of fundamental importance for prominent research. Therefore, during the period KTH will make an inventory of the need for investments, and ensure that the infrastructure is used as effectively and broadly as possible.

External funding for research
KTH has a high proportion of external financing, both from the public sector as well as from other parties in Sweden and abroad. Swedish and foreign companies contribute to the external financing by means of involvement in a wide range of research projects. For the past several years KTH has been actively working on establishing strong strategic partnerships with companies, where research funding becomes part of the joint collaboration, for example via centres or research projects. However, in most cases, the cooperative efforts with the business community does not mean that the financing is actually from the companies, but rather is based on the fact that they contribute with work efforts. More information about this may be found in the Joint Cooperation section.

EU funding
International research funding accounts for about ten percent of the research revenue. The EU is the primary source of funding. International research funding also includes other EU funding providers, US funding and, to a lesser extent, contributions from other regions and supranational organisations such as the present. NordForsk also offers financing opportunities for KTH.

Within the EU Framework Programme Horizon 2020, the last work programme for 2018-2020 is ongoing. KTH is the Swedish university that received the most projects from Horizon 2020 201 approved projects so far. In terms of funding, KTH is ranked third among Swedish participants in Horizon 2020. So far KTH has been granted over EUR 94 million in the programme (2014–2018).

Figure 17 shows the distribution of KTH’s approved projects so far within Horizon 2020 (2014–2018). The projects are divided into the areas of excellence, societal challenges, industrial leadership, Euratom, the dissemination of excellence and broader participation and science with and for...
society. Academic researchers from KTH are well represented within Marie Skłodowska-Curie (48 projects), information and communication technology (29 projects), smart, green and integrated transport (24 projects) and within the European Research Council (ERC), individual pioneering research, 19 projects. Note that the figure is based on statistics from September 2018. During October to December, KTH was awarded another four projects.

In order to increase KTH’s research grants from the EU, KTH’s Research Support Office has conducted several support activities aimed at KTH’s academic researchers in the form of seminars, workshops and individual counselling. Activities have also been carried out in collaboration with KTH’s strategic partnerships and alliances to encourage joint applications: a network meeting with the IVL Swedish Environmental Research Institute and the KTH Sustainability Office, an application workshop with the City of Stockholm, a workshop with Stockholm County Council and a first Nordic5Tech proposal workshop.

KTH, together with the other twelve members of the Cluster network, has endorsed a call for the next framework programme Horizon Europe 2021-2027. The call is for the EU Commission and the European Parliament to double the budget for research, innovation and education. The cesaer network, where KTH is a member and where KTH’s President is vice chairman, is also behind the call.

In 2018, approximately 298 applications were submitted to Horizon 2020 from KTH, of which 51 were granted. Divided into the various programmes, four are found in the ERC, 14 in Marie Skłodowska Curie (researcher mobility), and 33 in research collaborations that focus on societal challenges and technology development. KTH coordinates six of the new projects.

Sverker Sörlin, Professor of Environmental History, is one of ten Swedish academic researchers who have been awarded the prestigious ERC Advanced Grant (ADG) in 2018 (2017 call for applications, however the results were announced in 2018). It is the first ERC ADG in the social sciences and the humanities at KTH.

National external financing
External research funding from Swedish funders regarding the type of research is being supported, which instruments are used, and which funders may have an interest, continue to follow the same direction as in recent years. KTH has continued to be successful over the course of the year in obtaining funding from the Foundation for Strategic Research (SSF), as well as from the Swedish Research Council’s major request for proposals, both of which largely support basic research.

In 2018, the Swedish Research Council awarded KTH grants of SEK 269 million, of which SEK 163 million was awarded within the major call for science and technology. KTH was once again one of the institutions of higher education that received the most funding within this announcement.

KTH was awarded three of the nine projects that received funding from the Swedish Research Council’s call for contributions to interdisciplinary and multidisciplinary environments. Two of the projects, which are led by Amelie Eriksson Karlström, School of Engineering Sciences in Chemistry, Biotechnology and Health (CBH) (SEK 21.5 million), and Göran Stemme, School of Electrical Engineering and Computer Science (EECS) (SEK 26.5 million), focus on the detection of DNS and RNA, a technology that is crucial for research and development within Life Science. The third granted research project, in the field of cancer and tumour diseases, is led by Jens Lagergren, Electrical Engineering and Computer Science (EECS) (SEK 24 million). With the receipt of the three grants granted, KTH is the most successful university in the Swedish Research Council’s invitation for applications for funds for interdisciplinary and multidisciplinary research projects in 2018. The grants will be paid out over the course of 2018-2024.

KTH has also been awarded two consolidation grants that give the most prominent younger academic researchers an opportunity to consolidate their research and broaden their activities as independent academic researchers. The contributions go to Elena Gutierrez Farewik and Jonas Strandberg at the School of Engineering Sciences. The grants are SEK 12 million each and will be paid out over the course of a six-year period.

In 2018, the Knut and Alice Wallenberg Foundation has made two major research grants to KTH in 2018. Björn Önfelt receives SEK 31 million to study and develop methods for immunotherapy against cancer. Oscar Tjernberg receives SEK 30 million to investigate new temporary conditions in quantum materials. Both academic researchers belong to the School of Engineering Sciences and the funding runs for five years.

The Foundation also awarded financial support amounting to SEK 4 million over a five-year period to Johan Hästad, the School of Engineering Sciences, in his role as programme manager for the mathematics part of the Wallenberg Autonomous Systems Programme - Artificial Intelligence, wasp-ai. Danica Kragic Jensfelt, the School of Electrical Engineering and Computer Science, also receives SEK 4 million for his role as programme manager within the wasp-ai part, focused on “Deep learning/machine learning/explainable ai.”

Lars Berglund, School of Engineering Sciences in Chemistry, Biotechnology and Health, has been granted a Proof of Concept within the Wallenberg Wood Science Center (WWSC). The grant is for SEK 5 million over a three-year period.

Philippe Schlatter, the School of Engineering Sciences, and Panagiotis Papadimitratos, the School of Electrical Engineering and Computer Science, both receive continued funding as
Wallenberg Academy Fellow with SEK 9 million each over a five-year period. My Hedhammar, School of Engineering Sciences in Chemistry, Biotechnology and Health, received a Wallenberg Academy Fellow bridge grant of SEK 1 million, which can be used for a two-year period. Jonas Strandberg, the School of Engineering Sciences, was awarded SEK 3.2 million to his already ongoing Fellowship grant. The grant is a supplement to the consolidation grant which Strandberg was awarded from the Swedish Research Council.

Academic researchers from KTH have received six out of 14 grants in the Wallenberg mathematics programme. The Marcus and Amalia Wallenberg Foundation have awarded a grant of SEK 3.2 million to strengthen young people’s learning. The funds go to the Department of Learning at the School of Industrial Engineering and Management, which shares the grant with the Ministry of Justice. The project will last for 3.5 years.

Vinnova - the Swedish Governmental Agency for Innovation Systems is an important external research financier for KTH, and in 2018 has awarded grants amounting to SEK 140 million.

The Swedish Energy Agency is also an important external research financier and in 2018 has contributed to research at KTH totalling SEK 122 million.

The Swedish Foundation for Strategic Research (SSF) distributes SEK 300 million in grants to ten projects in the front for cyber and information security, Inter-net of Things. One-third, SEK 100 million, goes to academic researchers at KTH. The funds, which are distributed over five years, go to Mads Dam (SEK 34 million), Alexandre Proutiere and Panagiotis Papadimitros (SEK 33 million each). These researchers work at the School of Electrical Engineering and Computer Science.

Within the programme Materials for Energy Applications, half of the nine approved projects were from academic researchers at KTH. Ann Cornell was allocated SEK 28 million and Carina Lagergren was allocated SEK 34 million. Both researchers belong to the School of Engineering Sciences in Chemistry, Biotechnology and Health. Sergei Glavatskih, the School of Industrial Engineering and Management, was awarded SEK 35 million. The appropriations will be paid out over the course of the project for between 5 and 15 years, and the programme is financed in total in an amount approaching SEK 300 million.

SSF has also taken decisions concerning funding for twelve new industrial doctoral students, of which five were at KTH. Each industrial doctoral student receives SEK 2.5 million distributed over five years.

In 2018, Formas research council for sustainable development has awarded KTH academic researchers a grant of SEK 65 million.

Mistra – The Swedish Foundation for Strategic Environmental Research has made two award decisions in 2018, Mistra InfraMaint and Mistra Digital Forest. KTH is part of the two consortia that have been awarded funding but are not programme host.

Awards and awards to KTH academic researchers

Anna Delin, the School of Engineering Sciences, has been awarded the King. The Thureus Prize of the Royal Society of Sciences in Uppsala for “her significant contribution to the theory of nanomagnetism.”

Two researchers at the School of Engineering Sciences, Lucie Delenomte and Jonas Sellberg, have been awarded the Gustafsson Prize, which is given to young researchers at KTH and Uppsala University. The research grant is a total of SEK 2.5 million and may be used for a three-year period.

Jakob Nordström, the School of Electrical Engineering and Computer Science, has been elected to the Young Academy of Sweden. Membership is limited to five years, which means that the Academy is constantly renewed with new members.

Federico Favero, School of Architecture and the Built Environment, has been named one of this year’s “40 under 40” to draw attention to the 2018 young promising light designers in the world.

Sigge Thernwall’s major construction prize has been awarded to Raid Karouni at the School of Architecture and the Built Environment. He is awarded SEK 700,000 “for his way of developing the department and for driving the research and raising the level and quality of the subject.”

Johan Hästad, the School of Engineering Sciences, has been awarded The Knut Prize for long-term work on developing computer science.

Jonas Anund Vogel, the School of Industrial Engineering and Management, has been named this year’s Project Manager by the Swedish Project Academy. Jonas was awarded the prize for his leadership for the work with KTH Live-In Lab.

Rezan Güler, the School of Engineering Sciences in Chemistry, Biotechnology and Health, has been named the 2018 Swedish champion in presenting his research. Researcher Grand Prix is Sweden's largest competition in presentation technology for academic researchers and is organised by the Society of Science & Public Affairs together with the Swedish research councils.

Centres and other special initiatives

Centres are important for developing competitive research environments with industrially relevant problems and for
contributing networks for both senior academic researchers and doctoral students. A centre is a neutral collaboration platform where different parties agree on a common activities plan and contribute resources for implementation.

In 2018, KTH Live-In Lab was inaugurated. Live-In Lab is a test bed for the construction sector with the goal of shortening lead times from research to the introduction of research results in the market. The test bed is to enable new competitive environmental technology and sustainable products and services to reach the market faster.

Two centres have received extended funding from the Swedish Transport Administration: Centre for Sustainable Aviation and the Centre for Transport Research. During the year, KTH also expanded the activities of the centre Road2Science and joined the Swedish Hydropower Centre (svc) at Luleå University of Technology.

MedTechLabs, with collaboration in medical and technical research, has been established as a centre together with the parties Stockholm County Council and the Karolinska Institutet. The activities has previously been conducted in project form but has now been deepened by means of the centre of excellence castor, which is a centre for advanced software technology, has been established together with SAAB and Ericsson.

During the year 2018, the Swedish Research Council launched an extensive evaluation of the Linnaeus support granted in 2006 and 2008. As for how this has impacted KTH, it has affected the centres of excellence flow and access.

Management skills in collaborations and continuous feedback
To an increasing extent, external research funders are insisting that project coordinators be good collaborators. This means, in addition to leading projects with parties from various sectors, to also being able to work for sustainable development, gender equality, open data, integrity issues, impact and management of intellectual property assets.

In 2018, the Research Support Office commenced an initiative for competence development of collaboration leaders at KTH and created a platform for continuous feedback between academic researchers and support positions. At the beginning of the year, a seminar and workshop series was commenced with the goal of increasing the exchange between collaborators, the Schools and other involved academic researchers and other staff. During the year, the KTH Research Support Office held four seminars in collaboration with other internal support functions. The seminars have dealt with issues concerning the data protection regulation and open data, sustainable development and global sustainability goals, IP management and gender issues in research.

Strategic research areas
Since 2010 KTH has been responsible for five strategic research areas and participates in an additional five where other universities have primary responsibility. For the strategic research areas for which KTH has primary responsibility, the work continued in 2018 to develop a process for uniform management and reporting of financial results.

In the Government Fiscal Allocations Bill for 2018, the Swedish Government’s announced that SEK 78 million will be allocated to KTH in 2020 within a new strategic research area – digitisation. The intention with this is to strengthen the focus on IT and mobile communication. In addition, KTH has decided to start up scaling up the activities as early as 2018. KTH has initiated planning work to establish centres and principles for the allocation and distribution of the funds.

Science for Life Laboratory, SciLifeLab
SciLifeLab, together with max iv and ess, is one of the Swedish Government’s three major research infrastructure initiatives in Sweden. With financial support from the Swedish Government’s amounting to SEK 266 million for national research infrastructure, SciLifeLab assists Sweden’s research community in molecular life sciences with advanced technologies and expertise in order to be able to conduct research at the forefront and answer complex biological and medical questions. An additional SEK 157 million will be provided in strategic research funding that as SciLifeLab’s four host universities, Karolinska Institutet, KTH, Stockholm University and Uppsala University contribute to the centre’s research environment.

After the reorganisation in 2017, SciLifeLab’s infrastructure has established a life cycle with long-term sustainability. The life cycle involves a major international evaluation every four years within the framework of a four-year financing plan. In between, a review of the activities takes place, which this year has resulted in, among other things, reinforcements of certain facilities.

In 2018, the research infrastructure provided service to just over 1,200 academic researchers from all the major universities in Sweden conducting life science research. In addition to the academic projects, the research infrastructure has also provided services to health and medical care (eight percent of the resources), and to industry (three percent of the resources).

In addition to SciLifeLab’s research infrastructure and its users, SciLifeLab’s scientific activities also encompasses a research environment that consists of academic researchers working at the host university or other institutions with SciLifeLab activities and who are affiliated with SciLifeLab. The research infrastructure, its users and the research environment are part of an ecosystem where techniques, technology and knowledge are utilised and developed to facilitate the best research in molecular life sciences in Sweden. During the year, a number of national programmes within the field of molecular life sciences, referred to as SciLifeLab Research Community Programmes, were commenced in order
to stimulate synergy effects in major national collaborative projects. In addition, a special effort has been made for the renewal of instrumentation, as well as a special investment in technology development projects. It is intended that these Technology Development Projects are to reoccur regularly.

**Research Platforms**

The five research platforms (energy, information and communication technology, materials, life sciences technology and transport) are related to KTH’s strong interdisciplinary and multidisciplinary research areas. They aim to catalyse the coordination of inter-School activities and strategic initiatives within each field of research. In particular, the platforms serve as a channel for operational support for increased external financing, where activities are being conducted to increase KTH’s participation in Horizon 2020. In connection with the reorganisation of KTH’s Schools and administration, work is ongoing with the updating of the platforms’ guidelines.

Several of the platforms are active in the work with influencing the EU’s upcoming working programme and framework programme in research funding. Activities in the form of platform days, which are aimed at external and/or internal participants, are organised by all platforms. The possibility of co-funding the work with large research applications is offered by certain platforms, as well as assistance with financing of new centres in the initial building-up phase.

The information and communication technology platform, ICT, has been reviewed internally in 2018. The primary purpose is to broaden the focus on digitisation and to review the activities in relation to the School of Electrical Engineering and Computer Science, other KTH Schools with research groups within the ICT area and the assignment to Vice President for Digitalization at KTH.

For the fourth consecutive year, the energy platform arranged a summer school for doctoral students. This year’s theme was Energy Storage and Flexibility, and was arranged in August at KTH in Stockholm and at TU Eindhoven. The “Green batteries – Innovation for Today and Tomorrow” conference was held at KTH during the month of November. The organisers were the energy platform together with the embassy of France.

The materials platform has provided funding for seminars and workshops relevant to materials research in order to facilitate academic researchers’ possibilities to create networks and seek research funding. The platform also works continuously to increase KTH’s usage of common infrastructures.

The platform for Life Sciences Technology (LST) conducted its annual symposium KTH Life Science Technology Day with cancer as the theme. The platform also participated in the work with MedTechLabs, where the first research programme in computed tomography and endovascular techniques was launched in 2018.

In November, the transport platform arranged a workshop to test the possibilities of creating a new KTH-internal interaction model in order to reach out to several transport academic researchers with different skills. The platform has contributed to the work on a new KIC within Urban Mobility (see below under one).

Over the course of 2018, planning was conducted to start up a sixth research platform in the field of industrial conversion and industrialisation of new products and services for a sustainable society.
European Institute of Innovation and Technology, EIT

KTH is the main partner in five of a total of eight knowledge and innovation groups (KIC) in the fields of ICT (EIT Digital), Energy (EIT InnoEnergy), Materials (EIT Raw Materials), Health (eHealth) and Transport Systems (EIT Urban Mobility). Digital and InnoEnergy have been running since 2010 while Raw Materials and Health were established in 2015. Urban Mobility is a brand new KIC that was authorised in December 2018.

The commitment within one is strategically important for KTH and a tool for promoting KTH researchers’ networks and collaboration with European research groups and industrial partners. The networks enable an increased capacity for strong EU applications and a higher degree of EU funding for KTH. In addition, it offers many opportunities to renew KTH’s own core activities in both education and research.

KTH’s primary commitment in the field of EIT Digital is since its inception the master’s school which is one of the flagship projects. With regard to innovation projects, increased demands on industrial connection and product-related content have made it more difficult for KTH’s academic researchers to become involved. However, KTH is still one of the largest parties within Digital. Locally in Stockholm, EIT Digital arranged several events in 2018 where KTH participated with students, teachers and researchers in collaboration with industry and start-ups.

Within InnoEnergy, the number of innovation projects for KTH’s part remains low. On the educational programme side, KTH coordinates two programme leading to a master’s degree and is involved in another three. There are several good examples of start-up companies founded by KTH academic researchers or students who have gone further in their development and received attention both nationally and internationally.

Within EIT Health, KTH’s involvement in 2018 increased, especially within the education projects. Several new projects that were decided upon during the year will start in early 2019. The majority of these projects are based at KTH in Flemingsberg as part of a strategic advance in the area. A great success came in the form of development funding for a new doctoral programme in biomedical technology and health systems. Further interesting projects, which were granted during the year, deal with the healthcare educator’s network, a new Go Global initiative with stitches and home surveillance in the care of the elderly.

Within EIT Digital framework of EIT Raw Materials, in 2018, the large scale-up project CoFree - Developing cobalt-free substitutes for cemented carbide tools – for use in mining and manufacturing was completed, which has been underway since 2016. A number of new, but smaller but important, innovation and education projects were commenced in 2018. KTH’s participation is largely concentrated on the School of Industrial Engineering and Management. Efforts to involve more KTH Schools continue by means of direct contacts and via the KTH platforms, primarily the material platform.

In December 2018, it was decided that the MOBIlus consortium, where KTH is included, will run the new KIC Urban Mobility. In addition to KTH, the City of Stockholm, Barcelona, Scania, BMW, the Technical University of Denmark and TU Munich, among others, participate. The focus is on the transport system of tomorrow with a connection to urban planning and IT.

Research infrastructures

KTH is dependent upon access to current laboratory infrastructure to be able to conduct leading research and education. KTH has in recent years conducted a development work with the goal of ensuring that the research infrastructures that are strategically important for the University’s research and education are given long-term conditions.

During the winter of 2017/2018, KTH carried out an internal call for proposals to establish KTH research infrastructures. The criteria that KTH made in 2017 for what is to characterise a KTH research infrastructure formed the basis for the call. The criteria are based, among other things, on the availability of the infrastructure and that it is used by a number of research groups, long-term planning regarding organisation, financing, social impact and collaboration. Of the 19 applications received, nine research infrastructures were granted status as KTH research infrastructure and another six status as KTH interim research infrastructure, with the possibility of being established after further evaluation in 2019. In 2018, development work was carried out within the framework of the respective infrastructure related to, inter alia, websites, opportunity to book instruments and long-term economic models.

During the autumn of 2018, an internal call for SEK 20 million was made for the established KTH research infrastructures. An investigation is underway to review the possibilities for greater coordination and higher utilisation of the electron microscopes that KTH owns.

Over the course of 2018 academic researchers from KTH have been successful in SSF’s call for proposals regarding instrument, technology and method development, where eight of a total of 33 grants awarded went to KTH academic researchers. In our announcement regarding the availability of infrastructure, KTH was awarded two grants of a total of nine.

Via the Swedish Research Council, Sweden has financed the construction of a Swedish Material Science Beamline at the German synchrotron light source petra iii in Hamburg. In connection with the completion of the jet tube in 2018, the Swedish Research Council has awarded KTH hosting for the Swedish ray tube. KTH establishes a centre, xcel, with Linköping University as a party to create unique opportunities for Swedish materials researchers by having access to the world’s foremost high-energy X-ray for scientifically studying materials.
KTH also participates in a working group in the CESAE European network, which in 2018 mapped national and institutional processes and tools linked to the support of research infrastructures.

**Investment in sustainable production in Södertälje**

The research profile for the department’s sustainable production development, HPU in Södertälje has three different directions: management of processes and flows, operation and maintenance strategies, and production logistics and supply systems. According to the planning, the number of teachers and academic researchers will increase to about 60–80 individuals by 2022, and most of the new employees will have both education and research as a part of their employment. The establishment of the research organisation is in full swing. At the end of the 2018, there are three professors, two adjunct professors, three associate professors, one assistant professor, one employed doctoral student, and one industrial doctoral student. In addition to these, HPU will employ lecturers, doctoral students, associate professors and post-doctors. At the same time, close collaboration with Scania and AstraZeneca is underway to take in more industrial doctoral students.

In 2018, HPU received two research grants totalling some SEK 2.2 million from Vinnova and two EU projects focusing on education development. Furthermore, HPU is part of Vinnova’s HELIX Competence Centre, which is going on in 2017–2021 with its headquarters at Linköping University. During 2018, HPU published eight scientific articles and presented research at ten international conferences. In addition, the research group has published three book chapters.

In January 2018, the activities moved to a brand new campus with flexible solutions and new technology in the northern part of the city centre of Södertälje.

In 2018, the activities of KTH Leancentrum in Södertälje have contributed to the competence development of companies and the public sector. In the EU project MatLust, Leancentrum is responsible for the lean programme, where companies get both knowledge and tools to develop their activities to become more sustainable, efficient, learning and profitable. The Leancentrum also has the regional leadership responsibility for Stockholm in the national programme Production, which was initiated by Teknikföretagen and IF Metall. The intention and goal is to increase productivity, competitiveness and development capacity in Swedish industry via seminars and training at the companies, thereby strengthening the conditions for profitable production in Sweden.

**Export Controls**

KTH continues to assist academic researchers with an academic degree for export control in research projects where sensitive technology is to be exported. Another employee at the KTH Research Support Office has undergone the Swedish Export Control Society’s training seminars, whereby KTH now has employed two certified export control managers.

Targeted information seminars to disseminate knowledge about management and regulations regarding export control have been planned and will be implemented in the spring of 2019.

KTH has also created a network of people from Swedish universities to be able to share experiences regarding the management of export control.

**Honorary Doctorates**

In autumn 2018, KTH’s Faculty Council awarded honorary doctorates on the following stated grounds:

**Susanne Bødker**, Professor at the Department of Computer Science at Aarhus University, Denmark, is a leading researcher within the field of human-computer interaction, particularly participation processes in design. Professor Bødker works with theory building and empirical studies of human-computer interaction, with a focus on computersupported collaboration processes.

Via her strong commitment to participatory design, Susanne Bødker has had a decisive influence on the initial building up and development of research and education in human-computer interaction in Scandinavia. Her joint collaborations with KTH academic researchers in media technology and interaction design are extensive, extending far back in time. They have been shaping a new generation of academic researchers in a field of research with ever-increasing relevance.

**Beatriz Colomina**, Professor of Architecture Theory and History at Princeton University (U.S.) is a central figure in contemporary architecture theory and history. Professor Colomina has renewed her vision of modernism, and has contributed to broadening the field by placing architecture in dynamic relationship to technology, gender, consumption and the changing society of contemporary society.

Beatriz Colomina’s research was widely introduced to Swedish architecture, design and media culture as early as the mid-1990s. The dissemination of Colomina’s texts and her many return visits to KTH, and in other significant contexts in Swedish architecture and art, has had a significant influence on the development of education, research and theory in the field at KTH and in Sweden in general.

**Olle Eriksson**, Professor of Theoretical Magnetism, Uppsala University, is a leading researcher within the field of theoretical material science. His research has led to several methodological breakthroughs in electron structure theory,
and among other things is behind the development of UppASD a simulation method for atomic spin dynamics. Via extraordinary scientific efforts in the field of the physics of condensed matter, Olle Eriksson’s contributions have been of significant importance for the development of material science in Sweden. Over the years, a large number of joint collaborations with a number of research environments at KTH have been conducted with joint publications and projects as a result.

Nikolai Makarov, Professor of Mathematics at California Institute of Technology (Caltech) in the United States is a distinguished mathematician in the field of complex analysis with applications of complex dynamics. He has received international recognition as the mathematician behind Makarov’s Theorem (1985), a remarkable result of crucial importance in harmonic analysis of the dimension of the harmonically measured.

Nikolai Makarov’s collaboration with academic researchers at the Department of Mathematics at KTH goes far back in time and has, by means of direct collaborations and mutual exchanges of individuals between Caltech and KTH, contributed to significant progress in harmonic analysis, percolation theory, matrix models and Kähler geometry, among other fields.

Xuemin (Lisa) Xu, Professor of Biomedical Engineering and Vice-President for Education and International Affairs at Shanghai Jiao Tong University (SJTU) is a prominent researcher in bio-thermal physics and thermotherapy (thermal therapy for the treatment of cancer). Professor Xu has initiated a number of joint collaborations between her interdisciplinary institute Med-X and KTH academic researchers in related fields. Among other things, this has resulted in a joint research centre with annual summer schools and initiatives for similar activities in other fields.
Collaboration

The objective with long-term investments in strategic collaboration is that the efforts should contribute to higher quality and relevance in education and research. Since 2011, KTH has been working on establishing and developing a systematic approach to collaboration via central support functions consisting of expertise in alumni relations, fundraising, strategic partnerships, and collaboration with small and medium-sized companies and regional parties.

Strategic partnerships
KTH has long and extensive experience with working together with companies, research institutes, state authorities, municipalities and county councils. Since 2011, KTH has worked on establishing strategic partnerships with companies and organisations. Strategic partnerships with ABB, Bombardier, Ericsson, SAAB, Sandvik, Scania, Skanska, Stockholm County Council, City of Stockholm, Stora Enso and Vattenfall now exist.

Each partnership is monitored followed up annually by KTH’s senior management together with the senior management of each partner. The work is led by the Deputy-President. The steering groups include academics who are partner managers and relevant area representatives. The university administration assists with partner managers for each partnership.

Personal mobility
An essential part of KTH’s strategic collaborations consists of the personal mobility between academia and surrounding society. In collaboration with the surrounding community, they offer primarily three variants of personal mobility in to KTH: adjunct professor, affiliated faculty member, and industrial doctoral student. In recent years, KTH has worked to make it easier for individuals and categories of personnel who move between KTH and the community-at-large. With regard to personal mobility in KTH, mention may be made of Professional Licentiate of Engineering (PLEng), which has been implemented as a pilot project and is now included in the University’s regular activities.

In addition, KTH’s ambition is that teachers and academic researchers’ contacts with and stays at companies and governmental parties are to be valued higher and therefore during the past year invested SEK 600,000 per School for three years for the purpose of stimulating personal mobility out from KTH to the strategic collaborative partners. The KTH Schools must report how the funds have been used and how aspects relating to gender mainstreaming have been taken into account according to the plans submitted.

Work for increased impact of KTH’s research and education in the society-at-large
The work of increasing the impact – societal impact – of KTH’s research and educational programmes continued during the year. From 2018, the work relating to impact is financed from KTH, where previously, in a development phase, it had been financed externally. The work involves creating the preconditions for increased social impact, capturing effects and dissemination information about results. “Social impact managers” at KTH’s Schools have integrated the impact perspective into the core activities. The KTH Business Community Partnership - has coordinated the work, supported by a project group. The social impact managers have had regular meetings for an exchange of experience and common learning, which has contributed to increasing awareness of impact and possible ways to achieve increased social impact.

Development projects related to strategic collaboration
KTH was the initiator of the universities’ joint projects Exchange of Knowledge and Learning, About Strategic Collaboration, KLOSS, and Akademi Ut (KLOSS AkUt), which ran between 2013–2016.

At KTH’s initiative, a national collaboration network was established in 2017 (klossnet), for senior management personnel. All the Swedish universities participate in klossnet. Two meetings were held in 2018. One in April in Gothenburg, where the western Swedish institutions of higher education were hosts, and one in October in Malmö where the institutions of higher education in the south of the country were hosts. KTH acts as the coordinator for the network.

In 2017 Vinnova launched the programme “Development of the universities’ collaborative capacity for development projects on strategic collaboration.” In total, SEK 100 million will be distributed within this project by the end of 2020. At the end of 2017, a portfolio of 17 university-wide joint development projects commenced. KTH leads one of these projects, merut - Methods for Relevance Assessment of Courses, where Stockholm University, Umeå University, Linköping University, Karolinska Institutet, Mälardalen University and Kristianstad University are included. KTH participates in an additional eight projects.

Regional initiatives
During the year, Digital Demo Stockholm continued its further development. Digital Demo Stockholm is an innovation partnership between the public sector, academia and industry, in which KTH along with Ericsson, the City of Stockholm, ABB, Scania, Skanska, Vattenfall, Telia and the Stockholm County Council is a part of, which via digital
collaboration

solutions seeks to facilitate and improve the quality of life for the residents of the Stockholm region.

The purpose of Digital Demo Stockholm is to contribute, based on the region's long-term challenges, to strengthening the attractiveness of Stockholm and thus attracting individuals and business enterprises to the region, developing and showing off the opportunities and possibilities that exist in digital technology along with studying the consequences with the connected society for the citizen and the City plus enabling industry-wide system solutions for Stockholm's needs which transverse boundaries and which increase the region's attractiveness. KTH academic researchers participate in several of these projects.

SLL, KI and KTH have further developed the initiative concerning education and research in medical technology, MedTechLabs. The initiative has become a centre of excellence at KTH with initial activities in BioClinicum at Karolinska University Hospital. Academic researchers from KI and KTH together develop technology and methods that can then be used in healthcare. Initial focus area has been to develop technology that will help patients with, for example, stroke to get better diagnosis and treatment.

OpenLab is a challenge-driven innovation environment for collaboration between the City of Stockholm, SLL, the County Administrative Board in Stockholm County, KI, SU, Södertörn University and KTH. The core of the activities is interdisciplinary and multidisciplinary Master's courses in collaboration between the participating universities and other institutions of higher education. In addition, OpenLab also conducts workshops and other activities where different parties meet in order to develop proposals on the challenges facing the region under new forms and ways.

Collaboration with SMEs

KTH's strategy for joint collaboration with small and medium-sized enterprises (SME), means that KTH connects with small and medium-sized companies and via research and education and contributes knowledge to meet the companies' challenges and needs related to development.

In EU's Structural Funds partnership, cooperation with SMEs is particularly emphasised, where the fund is directed to projects that work for growth and employment in Sweden. The funds can be used to create strong research and innovation environments, promote increased entrepreneurship and develop entrepreneurship and growth. Good relations and collaborations with SMEs are required for continued success to obtain research funding in European competition.

The EU project Grön BoStad Stockholm (Green Housing Stockholm) is in its third year and, with the goal of strengthening the collaboration structures within housing construction in the Stockholm region, at the same time creating better conditions and opportunities for SMEs to enter with innovative, environmentally friendly products and services in these collaborations. Grön BoStad Stockholm is a collaborative project that contributes to sustainable urban development, reduced segregation and transition to a low-carbon economy.

Through the project, KTH has developed a good collaboration with the IVL Swedish Environmental Research Institute, Sustainable Innovation, sust, and sting.

The project Frontrunners for sustainable innovation is in its first year in which collaboration takes place together with the test and demo environments OpenLab, Kista Science City with Urban ICT Arena and Södertälje Science Park. The project focuses on KTH's research and education together with SMEs contributing to solutions to societal challenges with digitisation, life science and environmental and climate technology. The project addresses sustainability issues according to Stockholm's objective of being a sustainable and connected world-class city in 2040 with smart solutions. KTH provides a digital platform, KTH Degree Project Portal, for the purpose of facilitating KTH's students and employers to make contact with each other. Companies, organisations, institutes and institutions can publish proposals there for thesis degree projects, project assignments, apprenticeship/traine positions, internships, and part-time and seasonal work targeting students, free of charge. Over the course of 2018, more than 1,000 student assignments have been entered into the portal, of which approximately 800 were related to degree projects.

Lifelong learning and contract education

During the spring of 2018, a review has been made of how KTH's Schools work with grant-financed continuing education and contract education. In October, KTH's President decided to continue the development work within lifelong learning. The decision stated that the purpose is to contribute to the labour market's competence needs in KTH's areas of strength, and to increase the degree of collaboration for KTH's teachers, which contributes to increased quality and relevance in KTH's regular education.

During the autumn of 2018, work began to develop a strategy and a long-term plan to increase the educational volumes for professionals and to be able to carry out contract education. It can be stated that a coherent way of working for lifelong learning within KTH is needed. It enables suitable activities models, collaborations, financial conditions, tools, templates and methods to support teachers who carry out contract education in 2019. In December, the University President therefore decided to appoint a strategic steering group for lifelong learning and contract education at KTH.

KTH has, together with six other institutions of higher education, been commissioned to carry out a competence development effort in the field of artificial intelligence. KTH has received SEK 3 million for this purpose from the Swedish Government. In addition to these funds, KTH has received SEK 500,000 in collaboration with the same institutions of
higher education to establish a knowledge platform for artificial intelligence. KTH is expected to receive the same amount for 2019. Chalmers University of Technology coordinates the effort and reports back to the Swedish Government in a special order.

Within the framework of the two assignments, KTH, on its own or via the KTH Executive School, has conducted two open lectures with discussion, eight shorter seminars, two shorter workshops, three interactive workshops and two courses (three to four days). The participants, almost 600 individuals, have been professionals from the private and public sectors.

In addition to the activities that took place in 2018, several development activities have commenced. These will continue in 2019. Here, the ambition is to find effective formats for knowledge development for different types of needs. It is partly to increase the general understanding of AI through orientation, explanation and dialogue, and partly to develop specialist courses for those who need technical specialist expertise within AI.

In the development work, KTH will have a dialogue with its strategic partners and several other companies and organisations to investigate the need for competence development and education.

**Alumni Relationships and KTH Opportunities**

KTH Alumni’s mission is to develop and care for the relationship with KTH’s alumni. The focus during 2018 has been on increasing the long-term commitment and developing the joint collaborations with KTH’s Schools and students. Through the digital engagement platform KTH Opportunities, which was launched at the end of the year, opportunities are created for exchanging students, alumni and academia.

In 2018, some 60 events and meetings have been organised, both internationally and nationally. This year’s largest event was held in Munich when the University President and school managers participated. Alumni living in the Munich area, KTH students who were in the exchange, and students from the area who were just admitted to KTH participated at the event. One clear of the impact networking was that several of the alumni registered as mentors to outgoing students within the framework of the International Buddy Programme, IBP. It is KTH Alumni’s mentoring programme and in 2018, 55 outgoing students were matched with local alumni. Most of the students who applied for mentors would travel to Australia, the United States, Singapore or Germany.

Within the framework of the KTH Opportunities Fund, ten student projects have received support from the Fund. Approximately SEK 163,000 has been collected and two mentorship events have been implemented to thank loyal donors. 303 alumni have been engaged by giving of their time, for example by being a mentor or guest lecture.

**Fundraising**

KTH’s fundraising activities is a strategic, structured and long-term work to increase the private external funding to KTH. The activities are to be seen as a complement to traditional financing. Among the larger funders with a multi-year commitment, the Erling-Persson Family Foundation, Axel and Margaret Ax:son Johnson’s foundation, companies such as Scania, Ericsson and Einar Mattsson and private donors such as Rune Jonasson, can be mentioned.

KTH’s fundraising work is a focused effort to increase the involvement and support of KTH from industry and society in existing and new networks. A complementary and very important part of the work is to arrange different types of seminars that increase the awareness of KTH’s activities and strengthen relations with the surrounding society.

**Innovation Office**

In the Government research bill for 2008, among others, KTH was appointed to start what is referred to as an innovation office. The work within the innovation office is led by the department KTH Innovation within the university administration.

Since its inception, the Innovation Office has worked very closely with universities and other institutions of higher education in the region. These collaborations have deepened over the years and since 2016, KTH is allocated to provide services to colleges in the region. Particularly Mälardalen University (MDH), Stockholm School of Economics (HHS), and Swedish School of Sport and Health Sciences (GiH). With these colleges, KTH has since 2016 collaborative agreements on the provision of services for innovation development and the transfer of funds for skills development to and own innovation support at each university. Innovation development services include support and advice in activities development, financing, patents and recruitment. Each of the three colleges, together with KTH, has produced local action plans for activities and initiatives aimed at strengthening the innovation support locally. KTH has opened up its innovation support activities to individual academic researchers and students at the three colleges. KTH has also entered into a collaboration agreement with the Royal College of Music in Stockholm (KMH), but since no funds were obtained to develop the cooperation more concretely, in 2018 only informal contacts were held. Together with Södertörn University, KTH has submitted a request that this institution also be covered by support for colleges from the innovation office at KTH. Since the establishment of the innovation office, it has worked closely with Uppsala University within patent support and actively participated in other experience exchanges with other innovation offices.

In 2018, together with representatives of GiH, MDH and HHS, a study trip was made to London. The purpose of the trip
was to take part and be inspired by various activities processes, methods, models and tools for innovation support, link international contacts for the benefit of idea carriers and inspire continued cooperation within the innovation office at KTH. It was particularly interesting to learn more about what Brexit might entail for possible future collaborations within, for example, the internationalisation programme Brighter Startup. During the trip, seven visits were made to, among others, the Entrepreneurship Institute, King’s College London, Imperial Innovations and the Institute of Innovation and Entrepreneurship (IIE) at the London Business School.

Activities supporting innovation
KTH Innovation works to develop research results and activities ideas from academic researchers and students at KTH to evolve and meet the market. The overall objectives of KTH Innovation are to:

• increase the number of ideas and results from KTH’s academic researchers and students who meet the market and become successful innovations
• ensure an effective support process (with the proper network and prerequisites) in order to best support the path of ideas ways to the market
• further develop a strong, complementary ecosystem for innovation support at KTH that holds international top ranking

The strategy for 2018 has been to maintain a high inflow of ideas while adding resources to activities to achieve both a qualitative and quantitative increase in the outflow.

Extra efforts have been made to increase the idea flow via, for instance, ideation workshops in the long term. Training about how ideas arise, and identifying, verifying and developing ideas has become an important part of KTH Innovation’s work to increase the number of innovations from KTH. These efforts have been particularly popular among women at KTH.

In 2018, KTH Innovation’s work to increase the number of women who develop their ideas continued. Gender equality aspects have been introduced in the activities plan and are followed up on an ongoing basis, such as the number of new ideas from women and the number of teams in the process that have women members. In December 2018, the event tedxKTH-Women was conducted with over 400 participants who took part in speeches from academic researchers and students at KTH and external experts in the field of gender equality.

KTH Innovation has received 296 new ideas in 2018, of which about 30 percent was from academic researchers and 70 percent from students. The commercialisation projects supported by KTH Innovation have attracted a total of just over SEK 55 million in funding from, among other things, the Vino-funded Validation for the Application Programme (VFT), which is managed by KTH Holding AB at KTH. During the year, 20 companies were formed, of which 14 were student companies, and 17 patent applications were submitted. During the year, four companies were admitted to the business incubator stitch and twelve to other Swedish and international incubators. 28 projects were approved for pre-incubation at KTH Innovation.

In addition to these efforts, a number of cross-border activities have been implemented. Examples of these are the exchanges of experience and the Brighter Startup 2018 programme, which for the first time was implemented not only in Silicon Valley but also in New York and Munich. Brighter Startup is a tailor-made development programme for idea carriers with business ideas that are considered to have global potential. The programme is open to idea carriers from all parties within the innovation office with the goal of, among other things, increasing the participants’ knowledge of entrepreneurship in an international context. In 2018, KTH investigated the conditions for further broadening the Brighter programme to include, for example, the UK and Asia (Hong Kong or Singapore).

In 2016, Bicky Chakraborty, entrepreneur and owner of Elite Hotels, donated SEK 5 million to KTH for the purpose of strengthening the entrepreneurial mind-set of students and academic researchers at the University. The first round of the Bicky Chakraborty Entrepreneur Programme, which focuses on fostering entrepreneurs with ideas that focus on growth in Sweden, was completed in the autumn of 2017. In 2018, a second round of participants has gone through the programme with i.a. funding, coaching, specially customised courses and mentoring.

KTH Innovation has expert expertise in process-oriented innovation development. During the year, interest from the community-at-large has been great and discussions are being held with several Swedish and international companies and universities. In order to spread the expertise that KTH Innovation has built up, a website for KTH Innovation Readiness LevelTM was launched in 2018. It describes the tool and how it can be integrated into innovation development at other innovation offices. Access to the entire tool is provided by means of a unique login for each party who conducts relevant activities.

The annual Global Change Award, initiated by the non-profit H&M Foundation, aims to promote the shift from a linear to a circular fashion industry. In addition to a financial contribution, the winners can participate in a year-long accelerator programme that maximises the impact on the industry. KTH is a partner in the accelerator programme and KTH Innovation contributes with one week’s bootcamp in Stockholm.

Stockholm has a very attractive ecosystem for entrepreneurship and start-ups, where, among other things, many business angels offer an alternative to classic incubation. It is precisely the diversified ecosystem with many choices that contribute to making the region so strong and interesting for both investors and start-up companies.
Quality work

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

KTH’s quality assurance policy covers the areas of contract education, education, research and joint collaborations. During the year, the quality assurance work was primarily focused on developing KTH’s long-term and systematic quality assurance and further development of quality in education, research and joint collaborations. The work has been based on analyses of KTH’s existing quality assurance work and has been guided by national requirements and European guidelines for quality assurance of higher education and by KTH’s own prioritised goals.

As an integral part of KTH’s efforts to assure quality, it is of great importance that students, teachers and other personnel are included and committed. At the same time, there is a clear formal division of responsibilities and an administrative support organisation for the quality assurance work.

The Faculty Council, under the direction of the Dean, is the collegial body that has the overall responsibility for the quality in education, research and joint collaborations. At each School, there is a member of the faculty with the responsibility for the first-cycle and second-cycle educational programmes, named the Director of First and Second Cycle Education (GA), and member of the faculty with the responsibility for third-cycle studies named the Director of Third Cycle Education (FA). Each educational programme has a Programme Director (PA). Quality assurance work is included as a natural part of each respective position.

KTH is working strategically with education and quality assurance seminars targeted towards KTH’s personnel. During 2018, the eight seminars held dealt with various topics such as: “Raising gender awareness in teaching - a question of quality in education,” “Internationalisation as a driving force for quality in higher education,” “Sustainable development in education,” “University teaching excellence programme, what should it be good for?” The essence of the quality assurance work conducted in 2018 is described in the respective activities area below.

The role of the Faculty Council in the quality assurance work

The Faculty Council has an advisory role vis-à-vis the President, and it has overall responsibility for the quality of KTH’s education, research and joint collaborations as well as for the quality of recruitment and promotion processes for teacher appointments. The Council has the overall responsibility for the collegial foundation at KTH. The Faculty Council consists of thirteen members, seven of whom are teachers appointed via elections in the faculties, three are external members appointed by the University President, and three are representatives of the students appointed by the Student Union at the Royal Institute of Technology (THS).

Over the course of the year, several currently relevant and strategic quality issues were addressed in the Faculty Council. One recurring issue has been the further development of KTH’s quality assurance system for education and research. A new quality assurance policy that clearly reflects both European and national requirements such as KTH’s own goals within its educational programmes, research and joint collaborations has been established. Based on the new quality assurance policy, the Faculty Council has produced a guideline for quality assurance of the educational programmes at all levels. Based on the guidelines, the Faculty Council has adopted directives for the KTH Schools’ work concerning regular reviews of the educational programmes. A guideline for quality assurance of research at KTH has been developed at the request of the Faculty Council.

The Faculty Council has worked with developing new governing documents, for example concerning postdoctoral fellows, and coordinated and revised existing governing documents. One example of this is a new appointments regulations and appointments procedure. A work with governing documents about publishing with the integration of ethics issues and co-authorship relating to publishing has been initiated. In addition, several issues have been highlighted such as basic funding for teacher appointments, which have led to reports being written. In addition, a guideline for areas of responsibility and more for GA, FA and PA has been developed and adopted during the year.

The Faculty Council has conducted, via the Dean and Vice Dean, quality dialogues with the management at all KTH Schools, where the Schools’ quality assurance work in education, research, ensuring the availability of requisite skills and expertise and joint collaborations has been followed up. The Dean and Vice-Dean have also participated in the University President’s School dialogues and especially watched issues concerning the quality assurance work of the Schools.

The Faculty Council’s Resource Allocation Committee is tasked with following up and proposing changes to the current resource distribution system. In order for KTH to be able to compete for the most competent teachers and academic researchers, the faculty’s funding conditions need to be strengthened and the resource distribution systems developed. The Resource Allocation Committee has made recommendations that KTH is to change its internal distribution system in such a manner that KTH’s teachers have a basic funding for initiatives in the educational programme and research that covers their own salary.

Student influence and the Student Union’s role in quality assurance work

THS continues to have the status of as the student union for whole of KTH. KTH and THS have long history of working together where KTH’s students, via THS, are represented in all decision-making bodies and in virtually all preparatory
groups and work groups. KTH’s experience has been that THS chooses students who represent different parts of KTH and also, to the extent possible, who reflect the social, ethnic and cultural diversity of the University.

During 2018, THS has put special emphasis on improving the preconditions for KTH’s students to make their voices heard. Among other things, THS has participated in the work on producing revised guidelines for student influence. THS has also had a great focus on internationalisation and gender equality, diversity and equal treatment issues to ensure a fair and broad representation of all students. THS representatives are also very active and are a great asset in the work of developing KTH’s system for quality assurance.

Development of KTH’s quality assurance system

During the year, KTH continued its efforts to develop and implement new parts in the University’s system for quality assurance of the educational programme, research and joint collaborations. A number of governing documents have been produced that are important for KTH’s quality assurance work.

KTH’s quality assurance system consists of, among other things, continuous monitoring and regular reviews, and encompasses the educational programmes, research and joint collaborations. The quality assurance of joint collaborations must be integrated in the quality assurance of the educational programmes and research.

The guideline for the work relating to continuous follow-up and regular review of all education, including joint collaborations, states that the Dean holds responsibility for ensuring the continuous follow-up. Furthermore, the management at each school must, according to the instructions, be responsible for the regular examination. The instruction defines the requirements that the Schools’ work with regular reviews must fulfil.

A guideline for quality assurance of research has been established and states that quality assurance must be implemented by means of an internal annual follow-ups and a regular external audit every six years. The Dean is to have the responsibility for ensuring the continuous follow-up of KTH’s research, while the Vice President for Research shall be responsible for the regular review.

During the year, work commenced on developing analytical instruments for continuous follow-up of research at departmental level and school level, as well as planning for the next regular review of KTH’s research.

The quality assurance dialogue has been further developed based on the feedback provided by the Schools after quality dialogues have been conducted. For example, KTH’s central planning and information to the Schools about the quality dialogue has sent out been three months previously. The templates that guide the Schools in developing documentation have been developed further. For example, the templates for programme analyses and school reports have been further developed with issues relating to gender equality, diversity and equal treatment and sustainable development. The templates have been developed in collaboration with the Equality Office and Sustainability Office.

In connection with the planning of the quality dialogues in 2019, the Faculty Council has instructed the Schools to prepare preliminary plans for how they are to work with the regular review of their respective courses. The plans are to be based on the Faculty Council’s guidelines for the Schools’ regular review and are to be discussed at the quality dialogues 2019.

Quality assurance work in the education

In early 2018, all KTH educational programmes underwent a continuous review. In connection with the continuous review, the Dean and Vice-Dean carried out quality dialogues and discussed the results of programme analyses and School reports with the School management, the Directors of First and Second Cycle Education and the Directors of Third Cycle Education as well as a student representative. The analyses show that much works well, however it also shows that there are problems and challenges that the educational programme must continue to work on. This development work will be followed up during the quality dialogue in 2019. In particular, the development work relating to integrating sustainable development and gender equality in the educational programmes and the connection between course objectives, programme goals and the objectives of the educational programme in the degree system, will be followed up. Issues of importance that have been highlighted include the need to strengthen and clarify the Programme Director’s role and the need for consensus on the goals for at the third cycle educational programmes.

The review of subject study plans at the doctoral level that began in 2016 has also continued in 2018. In addition, there is a review and revision of programme descriptions for doctoral programmes. Undesired deficiencies in the programme descriptions are primarily related to the description of the systematic quality assurance work. The work of updating and revising the subject study plans aims to provide clearer study plans, an increased knowledge of the degree objectives and show how the educational programme supports the individual doctoral student in achieving the goals.

In 2018, work began with a review of the process for admission to doctoral studies. In addition, a review of course offerings and information concerning courses at the doctoral level is underway.

UKÄ’s audit reviews and evaluations

In 2018, three of KTH’s fields of doctoral education have been evaluated. The doctoral education fields Computer Science and Architecture were considered to be of high quality in all aspects, while the doctoral programme in the field of econom-
ics received the assessment of insufficient quality within the aspect of design, implementation and results. The work to rectify the deficiencies identified has been initiated by those responsible for the educational programme and a follow-up of this will be conducted by the Swedish Higher Education Authority (UKÄ) in May 2019.

During 2018, UKÄ initiated three additional educational evaluations, the doctoral education in the field of industrial production and art, technology and design, and the programme Degree of Master of Science in Secondary Education a major in mathematics. The results of these evaluations will be made public in 2019.

Prior to the review of KTH’s quality assurance work 2019, UKÄ has carried out a supervision of the application of rules at KTH. The audit included the transfer of academic credits, student influence, course syllabi and education plans, course evaluations, employment of staff, as well as appeals and complaints. The results of the review show that KTH needs to do make greater efforts with certain governing documents and carry out significant efforts for the provision of information and implementation of these.

Educational development

KTH offers higher education teaching training courses to teachers engaged in teaching, academic researchers and doctoral students at KTH. In 2018, both foundation courses and advanced courses were given in the field of university teaching with a total of 319 (394) registered participants, of whom 128 (118) were women and 191 (276) were men. The courses will follow current research in the field and the teachers’ needs. Within the university teaching work, collegial meetings have been arranged regularly. As a collegial gathering place, large group meetings have also been arranged once per term for course and programme coordinators and committed teachers.

Academic supervision and educational development in collaboration with teachers who initiate teaching via the learning platform Canvas has been developed. The focus is on how the platform can be used pedagogically in order to best promote learning and intellectual development among students.

During 2018, the course Leadership of educational development has been integrated into gender equality. An initiative within the Stockholm and Uppsala regions to work together in developing a course in gender and norm-critical pedagogy has begun. During the year, KTH also produced a new higher education teaching training course, Gender and gender equality in higher education technical studies. The course will be offered in 2019 and then annually.

A senior lectureship in technology science learning with a focus on gender and gender equality has been announced and a senior lectureship in engineering physics/engineering science learning with a focus on sustainable development is planned to be announced in 2019.

Questionnaire Follow-up Survey of students and doctoral students

KTH conducts regular surveys of students and doctoral students in the initial survey, the interim survey, the career survey and the doctoral student follow-up. The questionnaires are part of KTH’s systematic quality assurance work and the fact that they are regularly conducted provides the possibility to follow the developments over time. The results can be analysed for the entire population as well as for programmes individually, broken down by gender, Swedish citizens/non-Swedish citizens, and parents’ educational background, and presented in tables (overall, type of programme, individual programme and School) as well as in a comprehensive overall report. Therefore the results can be used in the quality assurance work at various levels in the activities and in the work on gender mainstreaming mandate. These questionnaires are conducted in joint collaboration with Statistics Sweden (scb).

Work began in 2018 on improving the dissemination and the use of the results of the surveys. The questionnaires have also been given a clearer role in the systematic quality assurance work as one of the supporting documents in the programme analyses that is done in connection with the continuous follow-up. The work to improve the dissemination and knowledge of the results will continue in 2019.

In 2018, KTH has conducted a career follow-up of those who have been awarded an academic degree in a first-cycle or second-cycle programme in 2013, 2014 and 2015. The purpose of the follow-up was to follow up how well KTH’s alumni establish themselves in the labour market, which tasks they perform daily work, which employers they are employed with and how they assess their education based on their experience in the labour market.

The survey shows that education from KTH leads to a qualified work with relatively high salary. Every two alumni obtained a job before they graduated, and within three months another 23 percent were gainfully employed. The alumni believe that the education has had great relevance in their daily work and they use the abilities and knowledge they acquired over the course of their education.

The alumni asked for more elements of entrepreneurship, career support and contact with the labour market. Those who answered the questionnaire are generally satisfied with their education and a clear majority would choose to study at KTH again.

In 2018, KTH has also followed up its entire doctoral student population by including questions about doctoral education in KTH’s employee survey. The survey was sent out to all current doctoral students at KTH including those with other funding than doctoral students. The doctoral students state that they enjoy KTH and are generally satisfied with their education, but they state that they need more information concerning, for example, expectations during the education and that the work with third cycle courses needs to be developed.
Quality assurance work within research

The quality assurance work within research activities is an integral part of the activities. KTH’s quality assurance work is to relate to national and international guidelines as well as the goals stated in KTH’s development plan. Quality assurance work in research is also included in goals and requirements expressed in KTH’s governing documents.

During the quality dialogues 2018, among other things, the need for continued development work on research ethics was identified and the Faculty Council has begun work on this issue.

KTH has a high proportion of externally funded research, and has shown continued strong competitiveness in 2018 both nationally and internationally. KTH is at the top of the Swedish universities that received the highest number of approved projects from the EU Horizon 2020 framework programme.

KTH is dependent upon access to research infrastructure in order to be able to conduct excellent cutting-edge research. In 2018, a development work has been conducted aimed at ensuring the expansion of research infrastructures. This is strategically important in order to provide KTH’s research and education the long-term preconditions to excel.

Quality assurance work within competence supply

During the year, work has been done on the Schools’ faculty development plans. A faculty development plan shall describe the work for ensuring the availability of requisite skills and expertise to the School and planning regarding teachers and academic researchers and address a number of aspects such as recruitment, promotion, development and gender equality. The work is a result of KTH needing to strengthen its systematic work with the ensuring the availability of requisite skills and expertise for education and research. During the quality dialogues, needs have been identified in a number of aspects of ensuring the availability of requisite skills and expertise. For example, there may be a need for efforts to increase gender equality in recruitment and to retain women teachers. When investing in sabbatical visits, the conditions for teachers to use such opportunities also need to be included. It is also important to offer opportunities to strengthen knowledge in the Swedish language to international faculty.

During the year, work on a proposal for a higher education teaching training programme for the purpose of the acquisition of qualifications and experience, and developing a qualifications and experience model has also been ongoing. The range of university teaching courses is to be reviewed and also be examined with a focus on gender equality, equal treatment and accessibility. The programme will cover all teaching staff regardless of position.

Quality assurance work within collaborations

Joint collaboration aspects are integrated into the quality dialogues with KTH’s Schools, which are carried out annually and are thus part of the continuous follow-up of both education and research. Joint collaborations will also be integrated into the regular review of KTH’s education and research. In 2018’s quality dialogues, among others things, staff mobility between KTH and the community-at-large was addressed.

In the area of joint collaborations, KTH 2018 has continued the development work within Societal Impact, that is, sectoral and social impact. The function of Impact Manager at KTH’s Schools has been the core of the work. Active work with Societal Impact is still included as part of the Schools’ assignments. The work has been supported by a project group with representatives from central activities support with a cohesive coordinator. Prioritised activities linked to previously developed school-specific strategies have been implemented at the Schools.

KTH has continued to be the coordinator and coordinator of the national management network on strategic co-operation on klossnet, knowledge exchange and learning on strategic joint collaborations. The brickwork provides opportunities for capacity building and quality assurance work in the area of joint collaborations.

KTH has during the year been active in national activities development projects in the joint collaborations area supported by Vinnova. A majority of the projects that KTH participates in have direct bearing on quality development, for example the project Joint collaborations Integrated Quality System for increased utilisation, beauty, which is led by Linköping University. In 2018, KTH has been a sub-project manager for work packages 2 in discretion, which relates to inventory and analysis. KTH also leads the MERUT - Methods for Relevance Assessment of Courses project, which aims to develop the synergy perspective in the quality assurance systems. Another project related to KTH’s quality assurance work is the qualifications and experience value of collaboration skills. KTH collaborates with strategic partners to strengthen relevance and quality in education and research. These contribute to increased and better contact between education, research and society. The partnerships are followed up by means of management dialogues every year.

Via the alumni, KTH receives regular support and feedback to its activities. They also contribute with a national network as well as growing international network. In order to strengthen and develop the relationship with KTH’s alumni, an effort has been initiated which aims to increase the understanding of how the alumni want to become involved and contribute to KTH’s educational programmes, research, and other activities. Over the course of 2018 an implementation has been initiated with a contracted engagement platform, where alumni are offered via a web platform opportunities to become engaged in KTH’s educational programmes and research.
Rankings
Ranking measures excellence in research, education and joint collaborations, and can be seen as a measurement of value of a university’s international competitiveness. The importance of visibility and placement on ranking lists of student recruitment, recruitment of international academic researchers, international collaborations, grants opportunities and influence on various policies, investments in excellence and expression of national prestige, for example, has increased in recent years. Several advocates of rankings, including the EU Commission, see rankings as an incentive to increase the quality of research and higher education.

KTH generally performed well overall in 2018. In the QS World University Rankings, KTH moved down from 98th place to 104. However, KTH’s international reputation, both among employers and among academicians, still remains strong. In THE World University Rankings KTH moved down from 173rd place to 187. KTH has roughly the same rankings as before, with only minor adjustments in terms of the figures for the various indicators. While at the same time other universities have advanced their positions. What is noteworthy is that KTH has declined in terms of the citation rate and overall reputation.

KTH has continued to perform well in subject area and subject rankings. In THE World University Rankings’ subject area ranking for engineering and technology, KTH was ranked as the 53rd best university in the world. However, this is a fall of 15 places since 2017. The decline can be attributed primarily to impaired rankings in terms of educational reputation. In QS’s corresponding ranking, KTH was ranked 41st best, which is a decline of twelve places. In QS’s subject rankings, KTH is represented with 15 subjects, five of which are among the top 50. The highest ranking was in architecture, with the position 24th place, followed by electrical engineering in the 28th place.

KTH’s foremost strength in this type of evaluation is a very high production of publications per teacher and academic researcher. In addition, KTH has a very high proportion of co-publishing with academic researchers from international universities and with the business community. KTH has a high proportion of international academic researchers, teachers and students. KTH is also successful in obtaining research funding from external funders. KTH performs well in the reputation measurements and performs better than the other Nordic technical universities.

KTH’s reputation is stronger than the University’s performance in the bibliometric indicators. KTH’s weakness is the values in indicators which measure the impact of research and excellence. This is illustrated by the relatively low normative citation rate, where KTH is ranked only at 404 according to THE World University Rankings and indicates a slight declining trend. There is potential for improvement with regard to the proportion of publications among the ten percent most cited as being classified within the same subject area. In addition, KTH has relatively few highly-cited academic researchers and relatively few articles in High Impact Journals.

Quality assurance work in the activities support
During 2018, a review was made of KTH’s activities support, both centrally and at KTH’s Schools. The goal is to create a more coherent KTH and that the activities support should be seen as an integral part of the KTH activities. A decision has been made on the reorganisation of the activities support from 1 January 2019.
Environment and sustainable development

The global challenges facing society are great and sustainability will be an important driving force for technological development for decades to come. As a technical university, KTH has a key role and responsibility in matters relating to sustainable development. KTH’s ambition is to be a leading technical university in the field of environment and sustainable development and have an identity and a brand associated with this. KTH has great opportunities to influence the development of society in a positive direction and contribute to the UN’s global sustainability goals by educating, researching and collaborating with the surrounding society and by reducing the environmental impact of KTH’s own activities.

KTH’s educational programme provides the next generation of leaders with the knowledge and skills needed to address future challenges. In order to contribute to a sustainable society, it is important that such research reaches out and is put into practice. KTH therefore attaches great importance to joint collaborations with important societal actors and to making new research results visible.

KTH’s strategic work on the environment and sustainable development is based on KTH’s policy for sustainable development and KTH’s overall sustainability goals 2016–2020. Central to the work is that it is integrated into regular activities at KTH’s Schools and the joint activities support. To support this work and create a long-term perspective, a strategic work is conducted within the KTH Sustainability Office. The Vice President for Sustainable Development is responsible for, among other things, the integration of sustainable development in education, research and joint collaborations. The Sustainability Manager is responsible for the KTH Sustainability Office and the University’s internal environmental and sustainability work within the framework of the environmental management system. KTH Sustainability Office supports the work of achieving sustainability goals in education, research, joint collaborations, in campus-related issues and in maintaining and developing KTH’s environmental management system.

To provide support for Vice President for Sustainable Development, as well as to support in the KTH Schools’ work on the integration of sustainability, there is an academic reference group with representatives from the Schools, the Faculty Council, the students and the KTH Sustainability Office. Additional persons from the activities can be co-opted if needed.

Until 2018, all Schools and the university administration had an environmental representative who, together with the school’s management, led the environmental management work, in many cases together with local environmental groups or environmental councils. As of 2019, the work is conducted by KTH Sustainability Office collaborating with function managers at the Schools. In addition, there are a number of specially trained internal environmental auditors.

Environmental Management System

KTH’s environmental management system has since August 2015 been certified according to the international environmental management standard ISO 14001 and complies with the requirements in the Ordinance (2009:907) on Environmental Management in Government Agencies. In the spring of 2018, a re-certification was carried out against the new requirements in the international environmental management standard. The focus was on the management’s commitment, external and stakeholder analysis, management of risks and opportunities, and the work on integrating the environmental management system into the activities’ processes. An important work that has been going on in 2018 has been to develop process descriptions and procedures for education and research within the framework of the environmental management system. These are intended to be determined by the Faculty Council in the spring of 2019.

The result of the re-certification shows that KTH worked well with the implementation of the new requirements and therefore continued certification.

In 2018, a merger of the KTH Schools took place from ten to five. This has had a positive impact on the environmental management system, as now there are fewer Schools that one has to work with, resulting in that a duplication of effort is avoided and the system has been able to coordinate matters to a greater extent.

During 2018, there has also been a review of the administration’s activities and the future organisation and working methods of the environmental management system. The environmental management system has been in an implementation phase for the three years that KTH has been certified and is now entering a management phase where the environmental and sustainability work will be integrated to a greater extent into the Schools’ processes, plans and decisions. As a result of the review, work on the environmental management system will be further centralised and streamlined.

KTH has established overall sustainability goals and all Schools as well as the university administration also have their own detailed goals that are in line with the overall goals. Each goal has an action programme with activities to achieve the goals.

The overall sustainability goals 2016-2020 comprise ten areas:

- teaching (the educational programme)
- research
- joint collaborations
• working environment (not followed up within the environmental management system)
• KTH Campus (energy, new construction and renovation, the outdoor environment, transport, waste)
• travel
• procurement and purchasing
• the handling of chemicals
• investments of foundation capital and donated capital
• organisation and management

Staff training
Various forms of environmental and sustainability education have been implemented in 2018, for example within the framework of the introduction of new employees and KTH's managerial and leadership training. The web-based introduction on sustainable development has been updated and remains part of the introduction for new employees. More specific training efforts have also been carried out within internal environmental audit and environmental management systems.

The higher education teaching training course Learning for Sustainable Development is still given once a year and it is now given in a continuation with a new higher education teaching training course, Learning for challenge-driven education with global development goals. Sustainable development is also integrated into several other courses. In Basic Communication and Teaching, doctoral students may reflect on the integration of sustainable development within their own education. The course Leadership of Educational Development also includes sustainable development as one of the themes that are addressed.

Education
The action programme for integrating sustainable development, which are followed up and revised every year, are now available for the vast majority of the educational programmes at all levels. The annual program analysis describes the work of integrating sustainable development into the programmes and thereby includes the sustainability work in KTH's internal quality assurance system. As a result, the work on sustainability integration in the programmes is part of the quality assurance system. In the students’ interim survey, there is now also a question with regards to sustainable development in education.

As support for KTH's teachers involved in the efforts relating to integrating sustainable development into teaching, various workshops on the theme have been held at the different Schools. A number of these have also been coordinated from the KTH Sustainability Office. These have included sustainability and choice of materials, sustainable activities development and the web platform for introduction to sustainable development that is integrated with KTH's learning platform. In the spring, a lunch seminar was organised for teachers and students about the companies’ role for a more sustainable development as well as their need for competence and cooperation with the institution of higher education as KTH. During the year, the Toolbox for Sustainable Development, the website with suggestions for learning goals, learning activities, literature tips and more were made available in English. In addition to the fact that a number of courses have previously integrated sustainable development, there is also a new higher education teaching training course, Learning for Challenge-Driven Education with Global Development Goals.

Funds from Environment and Sustainable Development across Disciplines (MHub på tvärs), has been disbursed for a number of education-related projects. One example is the development of a distance learning course in sustainable development for upper secondary school teachers to be given by KTH and a project entitled “How can a progression in sustainable development teaching be achieved at KTH?”

The number of first-cycle and second-cycle study programmes with a focus on the environment and sustainable development is at the same levels as in recent years, twelve. The number of courses specifically marked as related to the field of the environment or sustainably has increased from 435 to 672 between 2017 and 2018.

Research
Via the building up of networks and particular support for preparing applications, the KTH Sustainability Office supports larger applications in the field of sustainability. In the annual internal call for proposals, Environment and Sustainable Development across Disciplines, which grants funds up to SEK 100,000 for interdisciplinary and multidisciplinary initiatives in research, education and joint collaborations, 16 initiatives, of which twelve in research, received financial support during the year. Three involved financial support for writing an application to Vinnova’s call for proposals for the Competence Centre 2020 and one involved support for consortium formation within the framework of the EU’s Horizon 2020 programme.

In 2018, 14 percent of the notifications of a vacancy for a faculty position were linked to sustainable development, which is a decrease of three percentage points compared with the previous year. During the period 2017 to 2018, KTH has risen in the rankings in the Academic Ranking of World Universities to place 151–200 in Environmental Sciences and Engineering, and has maintained its QS ranking of 101–150 in the field.

In 2018, work began to link KTH’s impact work to sustainable development, where the world’s global sustainability goals are used as a framework. A Vinnova project has also been commenced to use these to analyse the impact of joint collaborations, with KTH's WaterCentre as a case study.
Collaboration

In order to develop joint collaborations with existing and new partners, stakeholders and students who contribute to sustainable development, KTH has arranged seminars and other activities. Over 20 external and internally targeted meeting venues have been organised or given support from the KTH Sustainability Office. More than 1,000 people (both internal and external) participated in these meetings during the year. For example, KTH Sustainability Research Day was well attended this year with close to 300 participants and also almost 100 individuals who followed the event on KTH’s website.

Information regarding sustainable development at KTH is available on the website and KTH’s intranet. Current news and information is conveyed via an internal and an external newsletter, and via a blog that the Vice President for Sustainable Development writes every two weeks. The internal newsletter provides news about KTH’s work relating to the environmental management system and sustainable development, and has been sent out to over 1,700 interested parties eight times over the course of the year. The external newsletter is aimed at the business community, decision makers, governmental authorities and NGOs, and has been published seven times during the year and reaches about 3,400 interested parties. Information concerning calls for research proposals within the fields of the environment and sustainable development has also been sent out to doctoral students and academic researchers about twice a month.

Beginning autumn of 2018, the blog was translated into English so to have a longer reach and gain an international audience reaching interested parties abroad. The blog had been visited over 6,400 times over the course of the year. In addition, the students blog with a focus on sustainable development to an international target audience about twice a month.

KTH participates in a large number of networks in sustainable development, including in Sustainable Development Solutions Network NUAS Sustainability, ISCn - International Sustainable Campus Network, NMC The Swedish Association for Sustainable Business, and the Fossil Free Sweden Initiative network. In June 2018, KTH hosted the ISC’s annual conference, with over 200 participants from leading universities from all over the world.

KTH’s academic researchers are involved in several studies and delegations that support the work of the Swedish Government. This applies i.a. to the Government’s strategic cooperation programme for a circular and bio-based economy, as well as smart cities, the Swedish Government’s Innovation Council, the Government’s Scientific Council for Sustainable Development, the Climate Policy Council, the Agenda 2030 delegation and the Delegation for a Circular Economy (which was established this year).

KTH has continued to participate in the UN’s 10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP), with a focus on procurements.

Three cooperation agreements focusing on the environment and sustainable development have been further developed together with the Stockholm Environment Institute, the IVL Swedish Environmental Research Institute and Akademiska Hus.

In 2018, KTH has been mentioned in about 3,200 news media items linked to sustainable development. The share of KTH’s total exposure in the field for 2018 is 21 percent, an increase of two percent over 2017. Over the course of 2018, 23 press releases were sent out in Swedish and four in English. In order to achieve the sustainability goals, an increased effort is required so as to increase the visibility of KTH’s work with a connection to sustainable development.

Sustainability Project

In 2018, KTH began work on implementing projects according to the new Campus Plan for 2018–2023, which focuses on a sustainable future. The Campus Plan describes the strategic planning of buildings and grounds for the KTH campus.

Within the framework of the Travel-free Meetings in Public Authorities project, KTH has chosen to work on the basis of the project Climate and Economic Research in Organisations project (cero) in joint collaboration between the KTH Sustainability Office and an academic researcher at the School of Architecture and Built Environment. The project includes both financial and environmental analyses of official business trips and commuting travel as well as workshops. An action programme has been developed in collaboration with the Schools’ environmental representatives and a number of departments within the university administration. A seminar on the academic community and travel has taken place this year.

Within the framework of a waste recovery project at KTH, several measures have been taken in order to further develop and improve the rubbish sorting within the university administration and for common areas in connection with classrooms and other educational premises. The experiences form the basis for support and guidance to the Schools. The project continues in 2019.

A bicycling day was arranged in conjunction with the Arrival Days for international students. During the bicycling day, students and staff received information about cycle paths plus the opportunity to try out electric bikes. As part of the bicycling day’s competitions, two bicycles were given away as prizes, which generated over one hundred competition entries with pictures of cycling students.

KTH Campus has had six hives in 2018. During the year, Bina produced 150 kg of honey, honey which can be purchased in several locations on the KTH Campus.
**Staff**

**KTH** is a university where people with a wide range of different backgrounds and experiences work together with the common purpose of managing, renewing and imparting knowledge for the society of today and tomorrow. **KTH** is to be a workplace where the desire for personal development and the taking of personal responsibility is stimulated. A number of activities conducted in 2018 within the area of human resources are outlined below.

**Ensuring the availability of requisite skills and expertise**

According to the Development Plan 2018–23, **KTH** is to be a “leading technical and international university that creates knowledge and competence for a sustainable future.” Ensuring the availability of requisite skills and expertise is central to achieving this goal and to meet **KTH**’s future staffing needs. It is of great importance that the work on the sub-processes of ensuring the availability of requisite skills and expertise takes place strategically, systematically and with good advance planning, and that **KTH** actively works with its employer brand in all channels and dialogues both internally and externally. A work concerning **KTH**’s employer brand began during 2018. Project directives have been developed and a basis for carrying out a current situation analysis.

Over the course of 2018, **KTH** has implemented a new recruitment process for doctoral students. The purpose is to attain a greater degree of uniformity in the recruitment work, with the focus on quality and efficiency, and to take a step towards increased digitalisation of the organisation’s processes. This is also an integral part of **KTH**’s work relating to gender equality, diversity and equal treatment issues via the use of structured interviewing techniques and an increased focus on personal skills and expertise as a complement to **KTH**’s eligibility requirements for admission to doctoral studies.

**Skills and career development**

**KTH** encourages its personnel to continuously develop their skills for a competitive and efficient activities. The President’s focus areas on sustainable development and gender equality are integrated into courses and skills-developing initiatives and working methods. During 2018, 816 course places were given in skills-developing activities. The gender distribution is 69 percent women and 31 percent men.

**Introduction**

Introduction to the nearest workplace, the work environment and work tasks and responsibilities is supported by a checklist for workplace introduction that is available on the intranet. Since the launch in 2018, at least 165 persons at **KTH** have completed the e-education “Our assignment,” which provides a basic understanding of the state higher education sector’s prerequisites and the role of state employee. Instead of introductory days, joint bilingual welcome days are given with a focus on creating new cross-border contacts and networks as well as knowledge of **KTH**’s goals, visions and values for new employees, regardless of the role at **KTH**. Professional and efficient activities support is promoted, among other means, via the in-depth introduction programme for technical and administrative staff. In 2018, 22 employees participated, of whom 18 were women and four were men. In the programme, there is a particular focus on internal job shadowing for a greater understanding of common processes at **KTH**.

**Staff training**

**KTH**’s employees are systematically offered regular and basic training in the work environment along with safety and employee law, as well as courses in law and government administration. During 2018, training in structured interviewing technology has been developed for all recruiting managers and other parties and units that participate in recruitment. The purpose is to increase the quality and efficiency of all recruitment processes at **KTH** and at the same time strengthen **KTH**’s brand as an employer and put the focus on the candidate experience.

Training sessions relating to recruitment from the **KTH** faculty’s perspective were offered during the year to the members of the recruitment committees and the promotion board. This seminar series aims to provide an understanding of the assignment to be part of a recruitment committee, develop the competence in recruitment and evaluation of applicants for promotions and calls for applications were made for announced vacancies in teaching positions, and by means of dialogue and experience exchange between the participants contribute to increased uniformity regarding the treatment and assessment of the applicant’s qualifications and experience. During 2018, 71 participants completed the training, of whom 49 were women and 22 were men.

The course Swedish and Swedish (work) culture has been offered with four course sessions spread over the year with approximately 15 participants per occasion. The purpose of the course is to make **KTH**’s foreign employees better prepared for a career in **KTH** or other university. About ten social events have been organised for foreign employees during the year, with approximately 50–70 participants each time. The purpose is to explain Swedish phenomena, to straighten out any question marks and to increase the social contact areas. Estimated features include after-work, forest walks, full-day excursions to various nearby castles, as well as information concerning Swedish school system, Swedish tax legislation and more. **KTH** has arranged ten events of a shorter character called Being new in Sweden might be a challenge with about 25 participants per occasion. The purpose is a quick introduction to Swedish administration, social insurance and administration. Rhetoric, presentation and workshop technology,
Professional support in order to create good conditions for carrying out the assignment. During the year, clearer guidelines for managerial and leadership have been worked out, which provide a common goal for what is a desirable leadership at KTH. A review of KTH’s governing documents helps to clarify the framework so that everyone who has management assignments easier to manage their activities and personnel responsibilities. The support for leaders for difficult situations in personnel issues has been structured via HR and also the occupational health care if needed. A conscious work with one’s own personal development is an important part of leadership and therefore encouraging feedback on their leadership in accordance with the template for employee interviews.

Skills development initiatives aimed at management and leadership categories

Initiatives to skills and expertise are a prerequisite for leaders in a complex organisation to succeed in their role. As an employer, KTH works systematically with leadership development and invests in leadership by offering various activities and initiatives. Consultation and advice on the need for development efforts is given on request. In addition to leadership development in the form of programmes and courses, managers are offered tutoring both individually and in groups. Participants are encouraged to continue collegial supervision in the constellations formed within the framework of the leadership efforts that KTH offers. In KTH’s risk analysis for 2017 and 2018, a concern is expressed about the lack of women leaders and role models. In 2018, 107 individuals participated in leadership efforts, of whom 59 were men and 48 women.

KTH’s future academic leaders

An employment position within the academic career path, the “tenure track,” means a long-term commitment from KTH in the form of resources and personal development opportunities. KTH’s tenure track is based on the University’s work with the personal development of its faculty. The career development support clarifies what is required for obtaining the requisite qualifications and experience to become a senior lecturer or professor, and offers opportunities for personal development within relevant areas.

Skills building support for active career planning for associate senior lecturers is offered in the programme “Partners in learning” (PIL), with the goal of clarifying the requirements for further efforts to obtain the requisite qualifications and experience to be promoted to senior lecturer or professor. In 2018, the programme had 26 participants, of whom 17 were men and nine were women.

In order to create awareness of one’s own significance as role model and leader, senior lecturers are offered a course in leadership for senior lecturers. Knowledge about the groups’ development, its processes and the importance of the

Career Support

KTH promotes internal and external mobility and strives to provide employees with the opportunity to develop their skills and thus maintain their employability. Life and career planning was started as a project and since its inception in 2008, just over 400 staff have conducted an individual life and career planning that is available in different variants and includes individual supervision/coaching and is financed by local common party change agents. During the year, a total of 42 employees, including 27 women and 15 men, applied for and conducted life and career planning.

Managerial skills and leadership

In KTH’s quest for a leading, integrated, visible, open, more digital, more sustainable, more international and more equal KTH, professional leadership is of great importance. Professional leadership within the academic world means that in the role be well acquainted with its management assignment in the form of responsibility, obligations and rights. Managers and managers have an increased responsibility, and therefore it is important to be able to offer effective and

Intercultural communication and foreign languages are examples of completed courses, and a number of continuously offered courses in Swedish for employees have been given as support for integration, internationalisation and parallel language at the University.

Motivated by a vision of a bilingual KTH, language courses at Cambridge University in English were conducted with a total of 38 participants, of whom 31 were women and seven men.

KTH also encourages knowledge exchange with the community-at-large and offers teachers and administrative staff the opportunity to apply for international staff exchanges with Erasmus+ scholarships. A total of 88 exchanges have been made, of whom 28 were teachers and 60 were employees from technical or administrative staff participated. It is also offered the opportunity to apply for scholarships and grants as a student, teacher and researcher at KTH via some 100 affiliated foundations and external scholarships.

KTH’s teachers and academic researchers participate extensively in international collaborations with universities around the world. KTH has, by means of central efforts, contributed to the international exchange. For example, associate senior lecturers, senior lecturers and professors have been given the opportunity to apply for funding for a limited time, referred to as a sabbatical period, to stay at another institution to concentrate on their research. The sabbatical period has been financed with central funds and funds from the School level. In 2018, four individuals have applied for and been granted international sabbatical periods. KTH strives for an increased number of applicants per available slot and especially among women.
leadership in the group, is conveyed. The number of participants was 15, of whom 13 were men and two were women.

**KTH’s managerial and leadership programme**

The programmes aim to create, via increased understanding of systems, meaningfulness and make the leadership role manageable and comprehensible. Leading within academic world is a complex task, and KTH sees an advantage with managers at all levels and within different activities areas participate together to increase understanding, and that exchange of experience and networking are factors for success.

**Step 1:** Lead at KTH, provides knowledge about how KTH is governed, organised and led, and what a leadership assignment means in terms of responsibilities, obligations and rights. Step 1 had 23 participants during the year, of whom 17 were women and six men.

**Step 2:** Lead yourself and others, where the focus is placed on personal development and growth, and the role of being a leader, with 27 participants during the year, of which 15 were women and 12 were men.

**Step 3:** Leading strategically, which is an individual programme. During the year there was one participant, a man.

All new managers at KTH will have access to a mentor. In collaboration with other universities in Stockholm and companies in Sweden, KTH offers two mentoring programmes each year. There were six individuals who participated s 2018, of whom five were women and one man.

**Gender equality, diversity and equal treatment (JML)**

Issues relating to gender equality, diversity and equal treatment (JML) are central to KTH’s continued development as one of Europe’s leading technical universities and therefore are clearly articulated in KTH’s development plan. During the year, KTH continued to build on the work for increased gender equality, diversity and equal treatment that exists. A review was made during the year concerning the templates for analyses of KTH’s educational programmes relating to questions about gender equality, diversity and equal treatment issues and the questions in the employee survey concerning discrimination.

KTH’s work on gender mainstreaming is structured according to Plan for Gender Mainstreaming KTH - JIKTH.

In the document, four priority goals for the gender equality work at KTH have been formulated based on the identification and mapping out of inequalities. These are: collective organising, knowledge and awareness, equal preconditions and inclusive cultures.

Collective organising refers to a systematic transposition of the gender equality, diversity and equal treatment work at KTH, where anti-discrimination legislation, work environment legislation, gender mainstreaming and value-based work are linked together. Based on this sub-goal, since the beginning of the year, a Director of Gender Equality, Diversity and Equal Treatment (JMLA) has been established in each School’s management group, the university administration and THS. The JMLA is responsible for coordinating and running the local JML work with a focus on both work and study environment. The JMLA Group is convened by Vice President for Gender Equality and Values.

KTH’s work with active measures based on all combatting all prohibited grounds of discrimination is coordinated from the KTH Equality Office, which was established at KTH in 2018. In addition, during the year, a stronger collaboration between the KTH Equality Office and the Student Union at the Royal Institute of Technology (THS) was established.

In 2018, the ongoing pilot projects in mechanical engineering and for vehicle engineering for gender mainstreaming at KTH have been evaluated and further developed. A development work within the programme leading to the Degree of Master of Science in Engineering with a major in industrial economics has also begun. During the year, the University has also developed a new university teaching course: Gender and Gender Equality in Higher Technical Education. The course will be offered annually. In 2018, the course Leadership of education development has been developed to contribute to mainstreaming of gender equality and the course will be offered once per year.

Gender and Change Management (GOFL) is a development programme whose first round has been implemented during the year. The programme, which involved 18 women in senior leading positions within both administration and among teachers and academic researchers, has had a focus on the goal to assist with women developing as leaders for change and thereby increase the influence of women in the design of KTH’s long-term work for gender equality.

The efforts to combat sexual harassment and harassment in general has been in particular focus during the year, where KTH intensified its work to counteract the existence as well as to structure processes for notification. Among other things, a work material has been developed on the issues to be used on workplace meetings. The KTH Equality Office has also made a review of the outcome of the application from students. KTH organised a theme day around the theme #metoo and sexual harassment in the academic world, open to all employees and students. As a symbolically important act, the City of Stockholm changed the name of Osquldas väg on the Valhallavägen Campus to Malvinas väg during the year, following suggestions from KTH and THS. Extensive courses on gender equality, diversity and equal treatment and on sexual harassment with a preventive focus have been conducted within the framework of the orientation reception for new students.
During the year, the salary survey underwent a change process, including a new analysis tool. Trade union cooperation and transparency were increased in accordance with last year’s action plan.

The reports to the University Board have been revised this year and for the first time included a focus report regarding KTH’s JML work. In connection with this, as well as on behalf of, among others, FFA and JMLA, different types of gender-disaggregated statistics have been developed internally.

During the year, the Dean initiated a work dialogue on the resource allocation from a gender perspective within the framework of KTH’s internal resource allocation system. Planning is underway to make a current situation analysis next year. KTH has been represented on a meeting on the issue that was arranged by the Secretariat for Gender Research.

The prize for gender equality and diversity work for employees was awarded this year Marianne Ekman Rising, Professor at the School of Industrial Engineering and Management, for her extensive work with career support and change management.

**The Working Environment**

In the systematic work environment work, KTH works i.a. with recurrent health surveys, digital support materials and education. The Schools annually make a work environment plan where activities within the physical, organisational and social work environment are documented and followed up. This includes summing up the previous year and planning the coming year’s school-wide activities. A new feature that was tested during the year is that the Schools have done half-yearly follow-up of the work environment plans.

The President decided that measures to combat discrimination, harassment, sexual harassment and offensive treatment would constitute a prioritised work environment area for 2018. Each School plans and works with activities within the framework of the annual work environment plan.

The role of the safety representative has been enhanced by having a representative in the central collaboration group. Since then, the safety representatives participate in rehabilitation investigations, receive information about incidents/accidents and occupational injury reports, and participate in the work relating to the school’s work environment plan. The safety representative’s views are taken into account in the investigation of discrimination and offensive treatment. During the year, a working group was established with representation from the primary safety representatives and from HR from each School. The group works with the development and application of the methodology in the systematic work environment work.

In 2018, KTH conducted an employee survey. The response rate was 61 percent (70 percent in 2016). The survey is a joint project, and is important for both the employer and the trade union organisations. The results have been presented to KTH’s senior management and all employees. Work on measures linked to the results takes place at both local and central levels.

**Teamwork among employees**

Within the employers’ activity series Employeship in employer interaction, a pilot project at KTH has been conducted. In the project, a method for deepening the knowledge of the Code of Conduct has been tested. A number of activities-related dilemmas have been formulated that will be used in various ways in the internal in service training at KTH.

**Staff structure**

The figures below may include impacts from rounding.

The number of employees during the year 2018 (annualised average) decreased by 27 persons to 4,925 (2,044 women and 2,881 men), compared with 4,952 in 2017 and 5,178 in 2016. With the conversion to FTEs (full-time equivalents) for comparison purposes, there has been an increase of 65 to 3,628 (1,406 women and 2,222 men) in 2018 compared to 3,563 in the previous year. In 2016, the number of FTEs was 3,572.

Measured in annual, FTEs the proportion of women increased by one percentage point to 39 percent compared with 2017.

**Teachers and academic researchers**

In 2018, the number of FTEs in the professorship group (professor, visiting professor and adjunct professor) increased by 12 FTEs to 308 (women with 7 to 53 and men with 5 to 255). Professors have increased by 15 FTEs to 302 (women with 7 to 51 and men with 8 to 251). The proportion of women has increased to 17 percent. The number of guest professors has decreased by 3 FTEs to 5 (women are unchanged at two and men at three).

In 2018, a total of 25 became newly employed as a professor or visiting professor. The proportion of women of these was 36 percent. In 2017, 22 persons became newly employed as a professor and the proportion of women of these was 32 percent. For the two years in the three-year period, the proportion of women becoming newly appointed a professor is 34 percent.

The number of adjunct professors has decreased by ten and at the end of the year is 45 (the number of women have decreased by 4 to 5, and the number of men have decreased by 6 to 40). The proportion of women measured in numbers has decreased by five percentage points to eleven percent. During the year, five individuals were newly hired to an adjunct professor position (five men). All adjunct professors are employed by KTH but have their primary activities located outside of KTH. The employment includes at least 20 percent of full-time and a maximum of 30 percent of full-time, and most of these adjunct professors do not receive any salary from KTH. The number of FTEs for those who receive salary amounts to 2018 one person.
**Associate Professors, lecturers and visiting teachers**

The number of lecturers has decreased by 5 FTEs to 280 (women have decreased by 2 to 66 and men have decreased by 4 to 214). The proportion of women is unchanged at 24 percentage points compared with the previous year. During the year, 30 new lecturers were hired (10 women and 20 men). The proportion of women of the new employees was 33 percent.

The number of adjunct faculty members has increased by 4 FTEs to 159 (women have increased by 5 to 59 and men have decreased by 1 to 99). The proportion of women in this category has increased by two percentage points to 37 percent compared to 2017.

The number of visiting teachers has declined from three FTEs to two.

**Career-development positions: Associate Professor and post doctorate**

At KTH, associate senior lecturers together with postdoctoral students form the category of career-development position. In 2018, the number of career-development positions increased by 54 FTEs to 270 (women with 15 to 76, and men with 38 to 193). The proportion of women who have a career-development position is 28 percent, which is unchanged compared to 2017.

The number of associate senior lecturers is unchanged at 66 FTEs compared to 2017 (the number of women has increased by 2 to 19, and men has decreased by 4 to 46). The proportion of women has increased by four percentage points to 30 compared to 2017. During the year, 12 associate senior lecturers were hired (four women and eight men), 33 percent of those moving into new positions were women.

The number of postdoctoral fellows has increased by 54 FTEs to 204 (women with 14, to 57 and men with 40 to 147). The proportion of women has thus decreased by one percentage point to 28 compared to 2017. The postdoctoral fellowship is a fixed-term employment for a maximum of two years.

**Researchers and research engineers**

Academic researchers and research engineers have increased by 11 FTEs to 557 (women have increased by 14 to 171 and men have decreased by 4 to 386). The proportion of women is 31 percent, which is an increase of two percentage points compared with the previous year.

**Doctoral students with an employment position**

Doctoral students with an employment position have decreased by 2 FTEs to 936 in 2018 (women have increased by 5 to 282, and men have decreased by 7 to 654). For doctoral students with an employment position, the proportion of women is 30 percentage points, which is unchanged compared to 2017.

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**Figure 24**

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<th>Staff 2018</th>
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<td>Professors</td>
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<td>Visiting professors</td>
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<td>Associate professors</td>
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<td>Lectures</td>
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<td>Guest teachers</td>
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<td>Researchers</td>
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<td>Postdoctoral</td>
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<td>Ph.D. student employment</td>
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<td>Technicians</td>
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<td>Administrators and library staff</td>
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<td>Other</td>
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<td>Total</td>
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Source: HR+
KTH had at the end of 2018 approximately 289,300 m² of premises, excluding housing for students and visiting academic researchers, which is a small increase compared to 2017. Approximately 30,000 m² is sublet to Röda Korsets Högskola, Stockholm University and the Karolinska Institute, among others. The proportion of vacant premises is 1.7 percent, which is a decrease from previous years. The empty premises are primarily office premises, individual lab rooms and storage rooms.

Major new and remodelling projects completed in 2018
• Building 43:16 at Teknikringen 29–33 has undergone a major renovation and refurbishment in 2016 and 2017. At the turn of the year 2017–2018, the last moving back in of activities that had been temporarily relocated in other buildings took place.
• In Snäckviken in Södertälje, KTH took over remodelled premises at the end of October 2017. Due to a delayed takeover, the School of Industrial Engineering and Management wasn’t able to move in until early January 2018.

Minor remodelling and renovation projects completed in 2018
• During the spring and summer period of 2018, a number of large lecture rooms were renovated. All lecture rooms were given new flooring and other surface layers, new fixtures and furnishings, and equipment.

Other ongoing construction projects
• In Albano, the construction of four new buildings for KTH and Stockholm University is underway. In connection with the House of Science at AlbaNova, new premises are being constructed for KTH for i.a. the School of Engineering Sciences and Nordita.

Student housing and accommodations for visiting academic researchers
Presently, KTH arranges for a large number of student apartments and dorm rooms for exchange students, master’s degree students from abroad, and visiting academic researchers.

In 2018, KTH Accommodation was able to provide accommodations for approximately 1,900 students. The rental portfolio amounts to 1,519 rooms and apartments. The occupancy rate has been approximately 87 percent. During the summer, maintenance and cleaning of the residences is carried out.

KTH Relocation provides accommodation to foreign doctoral students and visiting academic researchers. KTH Relocation had total holdings of 280 residences spread out in the greater Stockholm area in 2018. The occupancy rate was 95 percent. In addition to these accommodations, there is also a guest house, Matsällskapet i Solna, with an occupancy rate of approx. 75 percent. In total, more than 800 incoming visiting academic researchers and newly employed foreign visiting academic researchers and doctoral students have obtained their accommodations via KTH Relocation in 2018. KTH Relocation has offered a housing solution to all individuals who have made contact with them. KTH Relocation estimates that presently the need for accommodations for foreign doctoral students and visiting academic researchers is sufficiently covered.

During the year, construction of approximately 250 of the planned student residences on the KTH Campus was completed and moved into. KTH Accommodation and KTH Relocation works in close cooperation together to ensure as high an occupancy rate as possible.

For the coming years, KTH forecasts that the need for housing for students continues to be very high. In 2019, the final phase of the student housing on the KTH Campus will be completed, which follows the forecasted increased demand. Revenues from the rental fees for housing is projected to increase by SEK 12 million in 2019. Revenue from appropriations, which is reported internally within the full cost model, is estimated to be approximately SEK 11 million, which is the same level as in 2018. Information regarding revenues and expenses for 2018 is shown in Note 2 to the Financial Statement of revenues and expenses.
Finances – surplus/deficiencies, use of resources and financing

Financial results and change in capital

**KTH** continues to be in a strong financial situation and retains good financial basis for continued strategic investments. For 2018, **KTH** experienced positive financial results amounting to SEK 88 million, compared with financial results for 2017, which was SEK 14 million. The financial results are divided between a surplus for the activities within first-cycle and second-cycle programmes with SEK 27 million (-49 million) and with a surplus for the research and education activities at research level in the amount of SEK 61 million (63 million). Total budgeted **KTH** for a financial result at zero in 2018. The result within first-cycle and second-cycle study programmes has improved compared to previous years, since the appropriation has increased at the same time as the dimensioning within first-cycle and second-cycle study programmes, in addition to the investment in Södertälje, is largely unchanged. The financial results within research and education at the doctoral level is explained in part by a result from **KTH Holding AB** of SEK 9 (0) million. The surplus is also explained by the fact that recruitment for positions has been delayed and that investments have not gotten underway as originally planned.

The financial results are also affected by the fact that **KTH** is the principal for SciLifeLab. **KTH** received SEK 376 million in the research grant for the SciLifeLab research grant in 2018, where a large part is transferred to other participating institutions. The appropriations are deducted in their entirety in connection with **KTH** receiving the funds and not being accrued. During the year, accumulated funds for previous years have been utilised, while the year’s appropriations have not been distributed in their entirety, which has affected **KTH**’s surplus by SEK 20 million (-2 million).

Revenues have increased by just under six percent and amounted to SEK 5,366 million (5,076 million), measured as revenue from activities, including funds for financing transfers. Over the past ten years, **KTH**’s revenues have increased by almost 60 percent. Revenues have increased by 50 percent and transfers have more than tripled during the same period. The fact that the transfers have increased is primarily due to the strategic research areas and to the headship of SciLifeLab.

The Swedish Government’s capital amounts to SEK 867 million, which corresponds to 16 (15) percent of the turnover as defined above. The long-term goal is that the Swedish Government’s capital is to amount to ten percent of revenues. In 2015, decisions were made on investments financed by public authorities. Investments were initiated during the second half of 2016 and during 2018, earnings had a negative impact of SEK -37 million (-33 million). In 2018, the University Board has decided to continued strategic initiatives with accumulated capital. These initiatives will begin in 2019.

### Figure 29

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>4,786</td>
<td>4,549</td>
</tr>
<tr>
<td>Costs</td>
<td>4,708</td>
<td>4,535</td>
</tr>
<tr>
<td>Profit/loss</td>
<td>78</td>
<td>14</td>
</tr>
<tr>
<td>Profit/loss subsidiaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenues for transfers</td>
<td>580</td>
<td>527</td>
</tr>
<tr>
<td>Grant issued (costs for transfers)</td>
<td>-580</td>
<td>-527</td>
</tr>
<tr>
<td>Profit/loss</td>
<td>88</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: Financial system

### Figure 30

**Earnings and Capital Trend (MSEK)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Balance carried 2018</th>
<th>Profit / loss 2018</th>
<th>Profit / loss 2017</th>
<th>Balance brought 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>867</td>
<td>88</td>
<td>14</td>
<td>765</td>
</tr>
</tbody>
</table>

**Source:** Financial system

### Figure 31

**Capital development (MSEK)**

<table>
<thead>
<tr>
<th></th>
<th>Balance carried 2018</th>
<th>Profit / loss 2018</th>
<th>Profit / loss 2017</th>
<th>Balance brought 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>First and second level studies</td>
<td>71</td>
<td>27</td>
<td>-48</td>
<td>92</td>
</tr>
<tr>
<td>Purchased courses</td>
<td>12</td>
<td>-1</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Commissioned courses</td>
<td>-5</td>
<td>1</td>
<td>-3</td>
<td>-4</td>
</tr>
<tr>
<td>Research and doctoral studies</td>
<td>771</td>
<td>58</td>
<td>58</td>
<td>654</td>
</tr>
<tr>
<td>Commissioned research</td>
<td>19</td>
<td>3</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>867</td>
<td>88</td>
<td>14</td>
<td>765</td>
</tr>
</tbody>
</table>

**Source:** Financial system
Revenues
Operating revenues have increased by just under five percent and amounted to SEK 4,786 million in 2018, SEK 237 million more than in 2017.

First-cycle and second-cycle education
Compared with 2017, revenues have increased by SEK 120 million and constitute 32 percent of total revenues. Revenues in 2018 amounted to SEK 1,533 million (1,414 million).
Revenues relating to students obligated to pay tuition fees amounted to SEK 142 million (121 million), which corresponds to three percent of total revenues.
Revenues from funding allocation for the first-cycle and second-cycle study programmes have increased by just over seven percent and amounted to SEK 1,159 million. During the year, including the performances from December 2017, KTH has had an overproduction of performance within first-cycle and second-cycle study programmes and therefore deducted the overall ceiling amount.
Revenues from fees and other income has increased by 15 percent (SEK 40 million) and amounts to SEK 308 million. The increase is explained primarily by the fact that revenues for tuition fees increased by SEK 21 million compared with the previous year, and revenues from increased rents from student housing by SEK 17 million. During the autumn term of 2018, 672 (644) new tuition paying students were registered at KTH and many of the paying students rent their accommodations via KTH Accommodation. In 2018, the activities related to the education of students subject to tuition fees show a positive financial result of SEK 12 (14) million. The accumulated financial result for the fee-financed education is thus SEK 21 million, and work is underway on planning for investments within the activities.

Research and education in third-cycle programmes
Revenues account for 68 percent of total revenues and amounted to SEK 3,252 million, which is an increase of four percent compared with the previous year.
Revenues from the funding allocation for doctoral research and research education have increased by SEK 24 million compared with 2017, which roughly corresponds to the price and salary conversion. Revenues from fees and other income has increased by SEK 25 million. Part of the increase, some SEK 6 million, is due to an increase in the number of housing units rented out to visiting guest academic researchers.
Revenue from grants increased by SEK 70 million. Over and above the direct Swedish Government grants, the Swedish Research Council is KTH’s largest provider of funding, and revenues from grants from the Swedish Research Council amounted to SEK 272 million (316 million). The EU is the second largest financier, with grant revenues amounting to SEK 257 million (236 million). Grants received from the Wallenberg foundations have increased by 32 percent compared to 2017, and there are several projects at various Schools that have higher revenues than last year.
More information about KTH’s funders can be found in the Financial Statement under the Research section.
Costs
The expenditures have increased by four percent and amounted to SEK 4,708 million.

First-cycle and second-cycle courses education
The costs amounted to 32 (32) percent of the total costs and amounted to SEK 1,507 million, which is an increase of SEK 44 million compared with the previous year. Local expenses have increased by SEK 29 million, which is an increase of nine percent. In addition to new premises in the educational house on Campus and Södertälje, the increase is due to an increased number of student housing.

Research and education in third-cycle
The costs still account for 68 percent of the total costs and amounted to SEK 3,201 million, which is an increase of SEK 129 million compared with the previous year.

Personnel costs have increased by SEK 93 (44) million, and the increase is due to the 2018 salary revision that the number of FTEs increased by 65. The personnel structure is described in more detail in the section Academic Personnel and Support Staff.
**Management of foundations**

KTH currently manages 106 private foundations via related management. The University Board is constitutes the Board for each individual foundation.

During the year, three foundations were wound up, Stiftelsen Ingenjör Lorens Carlsons stipendiefond (Engineer Lorens Carlson’s Scholarship Fund), Stiftelsen Regeringsrådet A. Rydins stipendiefond (The Swedish Government Council A. Rydin’s scholarship fund Foundation Council of Government A. Rydin’s scholarship fund), and the Stiftelsen Tryggve Rubins stipendiefond (Tryggve Rubin Foundation), and have distributed the entire foundation capital for their respective purposes.

The foundations have been formed via various donations to KTH. The oldest foundation originated in a gift from 1866, which was donated to KTH’s predecessor, the Kongl. Teknologiska Institute (Royal Technical College). The donation was from the Wällofliga Borgaståndet and was intended to establish a scholarship fund for students without means who distinguished themselves through hard work, scholastic aptitude, and honourable behaviour. The foundation still grants scholarship for students at KTH. One foundation has its own governing board and is not reported as associated in KTH’s annual report.

**Management for the purpose of the foundation**

The purpose of each foundation is stated in each foundation’s charter (the donation document). In 2018, the KTH-affiliated foundations distributed SEK 21 million.

The largest group of KTH’s affiliated foundations, 53, provide scholarships to first-cycle and second-cycle students. It was decided to distribute approx. SEK 8 million from these foundations, via 462 scholarships. Of these, approx. SEK 3 million consist of funds from the largest of the foundations that KTH manages, the Foundation Henrik Göransson Sandviken Scholarship Fund. The foundation has capital amounting to SEK 155 million, which will primarily be invested in securities related to Sandvik AB.

Travel grants to teachers, academic researchers and doctoral students are awarded from 30 foundations. From these, grants amounting to some SEK 5 million were distributed among via 215 scholarships in 2018.

Other foundations contribute to the research activities at KTH. During the year, it was decided to distribute a grant of SEK 7 million divided among 71 grants for such activities.

The second largest foundation that KTH manages is KTH’s large Prize from a donation made in 1944. The donor, who desires to remain anonymous, stipulated that the prize is to go to a Swedish citizen who, among other things, by means of epoch-making findings, ingenious applications or artistic efforts had great significance for Sweden. The grant is SEK 1.2 million and is awarded in connection with KTH’s conferment of doctor’s degree and inauguration of Professors ceremony. In 2018, the grant was awarded to the Professor of Chemistry and the world-leading battery researcher Kristina Edström. The University Board’s statement with the grant reads: “Energy is a matter of destiny for the future and by means of Kristina Edström’s solid research and knowledge, the world has come considerably closer to a solution as it concerns energy storage. Via loading her research work with equal parts integrity and persistence, Kristina Edström, Professor of Inorganic Chemistry, has built up world-leading battery research. Via inspiring and sharing her creative skills with younger academic researchers, she is also a guarantor of qualitative regeneration – for the future.”

The foundations pay an annual management fee to KTH for the costs incurred in connection with the management of the foundation. The fees amounted to SEK 1.7 million in total in 2018.

**Management of Assets**

The capital of the affiliated foundations is managed in a discretionary manner by two external asset managers. This means that the asset managers have the right to implement transfers and reallocations in the portfolio, within the limits specified in KTH’s investment guidelines for its affiliated foundations.

The total amount of the assets belonging to the foundations amounted to SEK 691 million (SEK 764 million) at year-end.

**Figure 39**

Size and number of foundations
Capital, MSEK at end of December 2018

<table>
<thead>
<tr>
<th>Capital MSEK</th>
<th>Number</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>15–140 MSEK</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>5–15 MSEK</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>1–5 MSEK</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Up to 1 MSEK</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

Total: 106 MSEK 691

Source: Bank statements of the foundations
### Financial Statement

#### Operating revenues

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Government grants</td>
<td>2,367,083</td>
<td>2,264,457</td>
<td>2,215,352</td>
<td>2,202,935</td>
<td>2,204,918</td>
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<tr>
<td>Revenues from tuition fees and other charges</td>
<td>645,225</td>
<td>581,022</td>
<td>543,086</td>
<td>497,627</td>
<td>426,998</td>
</tr>
<tr>
<td>Revenues from grants</td>
<td>1,769,529</td>
<td>1,698,050</td>
<td>1,662,645</td>
<td>1,647,845</td>
<td>1,603,381</td>
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<tr>
<td>Financial income</td>
<td>4,001</td>
<td>5,161</td>
<td>5,114</td>
<td>3,164</td>
<td>7,528</td>
</tr>
<tr>
<td><strong>Total operating revenues</strong></td>
<td><strong>4,785,838</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>
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#### Operating costs

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Staff costs</td>
<td>2,839,754</td>
<td>2,727,105</td>
<td>2,669,311</td>
<td>2,643,190</td>
<td>2,565,289</td>
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<tr>
<td>Costs for premises</td>
<td>880,878</td>
<td>836,017</td>
<td>807,880</td>
<td>761,362</td>
<td>737,816</td>
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<tr>
<td>Other operational costs</td>
<td>772,464</td>
<td>745,230</td>
<td>731,618</td>
<td>697,741</td>
<td>679,637</td>
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<tr>
<td>Financial costs</td>
<td>7,623</td>
<td>7,566</td>
<td>8,552</td>
<td>5,762</td>
<td>4,175</td>
</tr>
<tr>
<td>Depreciation</td>
<td>206,842</td>
<td>219,412</td>
<td>227,156</td>
<td>220,756</td>
<td>171,463</td>
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<tr>
<td><strong>Total operating costs</strong></td>
<td><strong>4,707,562</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>
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</table>

#### Total operating outcome

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Total operating outcome</strong></td>
<td><strong>78,276</strong></td>
<td><strong>11,340</strong></td>
<td><strong>-18,320</strong></td>
<td><strong>22,761</strong></td>
<td><strong>84,445</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Total outcome</strong></td>
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<td><strong>11,340</strong></td>
<td><strong>-18,320</strong></td>
<td><strong>22,761</strong></td>
<td><strong>84,445</strong></td>
</tr>
</tbody>
</table>

#### Transfers

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Funds allocated from government budget for financing of grants</td>
<td>339,865</td>
<td>317,409</td>
<td>309,729</td>
<td>257,833</td>
<td>231,449</td>
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<tr>
<td>Funds allocated from government agencies for financing of grants</td>
<td>150,459</td>
<td>143,103</td>
<td>111,489</td>
<td>128,269</td>
<td>118,301</td>
</tr>
<tr>
<td>Other funds received for financing of grants</td>
<td>89,621</td>
<td>66,412</td>
<td>60,411</td>
<td>48,465</td>
<td>43,937</td>
</tr>
<tr>
<td>Grants made</td>
<td>-579,945</td>
<td>-526,925</td>
<td>-481,629</td>
<td>-343,516</td>
<td>-393,687</td>
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<tr>
<td><strong>Total outcome</strong></td>
<td><strong>78,276</strong></td>
<td><strong>11,340</strong></td>
<td><strong>-18,320</strong></td>
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<td><strong>84,445</strong></td>
</tr>
</tbody>
</table>

#### Changes to capital for year

<table>
<thead>
<tr>
<th></th>
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<td><strong>-18,320</strong></td>
<td><strong>22,761</strong></td>
<td><strong>84,445</strong></td>
</tr>
</tbody>
</table>

### Financial Statement per operational area

#### Operating revenues

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Education at first and second cycle</th>
<th>Research and education at third cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government grants</td>
<td>2,367,083</td>
<td>1,158,807</td>
<td>0</td>
</tr>
<tr>
<td>Revenues from tuition fees and other charges</td>
<td>645,225</td>
<td>284,301</td>
<td>11,193</td>
</tr>
<tr>
<td>Revenues from grants</td>
<td>1,769,529</td>
<td>65,044</td>
<td>0</td>
</tr>
<tr>
<td>Financial income</td>
<td>4,001</td>
<td>1,089</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total operating revenues</strong></td>
<td><strong>4,785,838</strong></td>
<td><strong>1,509,241</strong></td>
<td><strong>11,193</strong></td>
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</tbody>
</table>

#### Operating costs

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Education at first and second cycle</th>
<th>Research and education at third cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff costs</td>
<td>2,839,754</td>
<td>815,734</td>
<td>3,283</td>
</tr>
<tr>
<td>Costs for premises</td>
<td>880,878</td>
<td>369,611</td>
<td>545</td>
</tr>
<tr>
<td>Other operational costs</td>
<td>772,464</td>
<td>236,101</td>
<td>8,543</td>
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<tr>
<td>Financial costs</td>
<td>7,623</td>
<td>2,268</td>
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<tr>
<td>Depreciation</td>
<td>206,842</td>
<td>58,827</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total operating costs</strong></td>
<td><strong>4,707,562</strong></td>
<td><strong>1,482,541</strong></td>
<td><strong>12,371</strong></td>
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#### Total operating outcome

<table>
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<tbody>
<tr>
<td><strong>Total operating outcome</strong></td>
<td><strong>78,276</strong></td>
<td><strong>26,700</strong></td>
<td><strong>-1,178</strong></td>
<td><strong>1,415</strong></td>
<td><strong>48,260</strong></td>
<td><strong>3,079</strong></td>
<td></td>
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</table>

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

<table>
<thead>
<tr>
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<td><strong>3,079</strong></td>
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</table>

### Changes to capital for year

<table>
<thead>
<tr>
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<td><strong>1,415</strong></td>
<td><strong>48,260</strong></td>
<td><strong>3,079</strong></td>
<td></td>
</tr>
</tbody>
</table>
## Balance Sheet

### ASSETS

#### I. Intangible fixed assets
- Capitalised expenditure for development
- Intellectual rights and other intangible assets

#### II. Tangible fixed assets
- Improvements to non-owned real estate
- Machines, inventory items, installation etc.
- Construction in progress
- Advance payments for tangible fixed assets

#### III. Financial fixed assets
- Interests in wholly and partially owned companies
- Other investments held as fixed assets

#### VI. Receivables
- Receivables - customers
- Receivables - other government agencies
- Other receivables

#### VII. Cut of items
- Prepaid expenses
- Accrued grant revenues
- Other accrued revenues

#### VIII. Settlement with Government
- Settlement with Government

#### X. Cash and cash equivalents
- Balance and interest-bearing account at Swedish National Debt Office
- Cash and cash equivalents

#### TOTAL ASSETS

### CAPITAL AND LIABILITIES

#### I. Agency capital
- Government Capital
- Outcome from shares of/in subsidiary companies and other interests
- Changes to capital brought forward
- Changes to capital according to Financial Statement

#### III. Provisions
- Provisions for pensions and similar commitments
- Other provisions

#### IV. Liabilities etc.
- Loans from Swedish National Debt Office
- Accounts payable - other government agencies
- Accounts payable - suppliers
- Other accounts payable
- Deposits

#### V. Cut-off items
- Accrued expenses
- Unutilised grants
- Other prepaid revenues

#### TOTAL CAPITAL AND LIABILITIES

### CONTINGENT LIABILITIES
- Government guarantees for loan and credits
- Other contingents liabilities

<table>
<thead>
<tr>
<th></th>
<th>2018-12-31</th>
<th>2017-12-31</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSETS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Intangible fixed assets</td>
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<td>0</td>
</tr>
<tr>
<td>II. Tangible fixed assets</td>
<td>704,779</td>
<td>736,750</td>
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<tr>
<td>III. Financial fixed assets</td>
<td>38,714</td>
<td>27,978</td>
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<td>VI. Receivables</td>
<td>153,108</td>
<td>123,954</td>
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<td>VII. Cut of items</td>
<td>852,322</td>
<td>719,402</td>
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<tr>
<td>VIII. Settlement with Government</td>
<td>0</td>
<td>0</td>
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<tr>
<td>X. Cash and cash equivalents</td>
<td>1,579,513</td>
<td>1,392,962</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>3,327,836</td>
<td>3,001,046</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>CAPITAL AND LIABILITIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Agency capital</td>
<td>867,130</td>
<td>778,668</td>
</tr>
<tr>
<td>II. Provisions</td>
<td>39,883</td>
<td>39,883</td>
</tr>
<tr>
<td>IV. Liabilities etc.</td>
<td>1,172,344</td>
<td>1,029,414</td>
</tr>
<tr>
<td><strong>TOTAL CAPITAL AND LIABILITIES</strong></td>
<td>3,327,836</td>
<td>3,001,046</td>
</tr>
</tbody>
</table>

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<thead>
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</thead>
<tbody>
<tr>
<td><strong>CONTINGENT LIABILITIES</strong></td>
<td></td>
<td></td>
</tr>
<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>