Development Plan
2013 – 2017
1. Preface

»KTH is a dynamic, innovative and creative university fuelled by the curiosity, purpose and drive to create a brighter tomorrow.«
Preface

During 2011 KTH’s Vision 2027 was drawn up; a process involving many internal and external participants. The final document (http://www.kth.se/vision2027) contains a number of concrete targets for KTH’s situation in 15 years’ time. The development plan for the 2013-2016 period was drawn up on the basis of these targets. This process also involved discussions in all the regular groups; the university board, the management group, vice-chancellor group, collaboration group, faculty council with the education committee and the academic appointments committee, as well the persons in charge of first-cycle and third-cycle education. In addition, five thematic discussion seminars were held with specially invited internal and external participants.

The university board established the development plan for 2013-16 on December 12th, 2012. All of KTH’s schools and the administration’s departments were then tasked by the vice-chancellor to draw up their own development plans on the basis of KTH’s development plan.

In the autumn of 2015 a decision was made to revise and extend the 2013-16 development plan to 2017. The review related mainly to the quantitative targets and most of the body of the text is unchanged. The revised development plan for the 2013-17 period has been accepted by the management group and faculty council and was established by the university board at its meeting on April 14th, 2016. All of the KTH schools and the administration’s departments will revise their development plans for the 2013-17 period on, or by June 30th at the latest.

KTH and the world around us

Humanity is facing major global challenges such as climate change, rising energy needs, food supply, ageing populations and urbanisation. All of these problems require a more sustainable approach. Collaboration between different areas of knowledge is needed in order to find solutions. Extensive forms of cooperation between the university and other stakeholders in society will become increasingly important.

The expectations and demands on higher education and research are continually growing. Research is expected to be of social and economic benefit. However, a university that searches for new knowledge cannot just confine itself to contemporary issues; it must be prepared for the unexpected by being able to quickly turn its attention to new, important fields. At the same time, the university must stand for continuity through its wide range of subjects.

The higher education sector is one of the fastest growing sectors in society. The globalisation of higher education presents new challenges for all universities. There is competition from universities all over the world. In growth economies, universities are being established at a rapid pace. While established universities in, for example, the USA are deploying their brands to set up affiliates in other countries. Swedish universities also need to strengthen their international profile and market their brands in a clear way, not least to attract more paying students. Here, KTH already holds a good position that must be further consolidated.

A growing number of applicants per place to KTH’s study programmes indicates that there is an increasing interest in technical studies. This however cannot be taken for granted and continued efforts are needed to retain and strengthen KTH’s position. The marketing of KTH’s study programmes must emphasise that people who have a technical degree really can contribute to sustainable societal development.

The generation that is now applying for higher education programmes has
grown up with the Internet as a way of life and the e-learning sector is expanding rapidly. There may be considerable consequences for the seats of learning that do not take this trend into account.

The research landscape is undergoing a structural change. Less basic research is being done in trade and industry, while other players such as universities, research institutes and subcontractors are doing a larger share of applied research. A key issue for trade and industry is the future supply of skills and expertise. Considering these factors, there are great opportunities for KTH to collaborate in a more integrated way as regards education and research that will increase innovativeness and competitiveness. This collaboration can take place in many ways and at different levels - with large and small companies, with organisations and authorities at national, regional and local level.

Various ranking lists have had a major impact in both Sweden and abroad. KTH must take these into account and consider the consequences of ranking in its strategic deliberations. This is closely linked to the recurring quality assessments that are done of education (EAE) and research (RAE).

Different types of alliances have been created between KTH and other seats of learning in order for initiatives in education and research to have a greater impact. Two excellent examples are the Science of Life Laboratory (SciLifeLab) and establishment of the European Institute of Innovation and Technology (EIT). Strategic alliances with other prominent universities, institutes and industries, in Sweden and abroad, will continue to be a success factor.

Over time, the share of government basic funding has decreased while more project-orientated funding has increased. This makes it increasingly difficult for KTH to take its own research initiatives. Therefore it is important to find complementary forms of more long-term funding. Here, fundraising will become increasingly important - a strategic, systematic and long-term approach that will secure future revenue for KTH through donations and private funding.

KTH’s identity and brand

Through excellence in research and education and by collaborating closely with the world around us, KTH will continue to strengthen its position as one of Europe’s most prominent technical universities. KTH operates on an international market and must be able to compete with other excellent technical universities for the best researchers and students. KTH is already a multicultural seat of learning. There are many nationalities and cultures on campus and English is the language used in many research environments. There are exchanges with foreign universities at several levels. KTH will work actively to encourage more students to be aware of and exploit the advantages of studying abroad.

KTH strives to achieve a - brighter tomorrow. We serve the people of today and the society of tomorrow and we want to find smart solutions to contemporary and future challenges.

KTH’s identity and brand will be associated with sustainable development and KTH will be one of Europe’s leading technical universities in this field. KTH’s activities are characterised by dynamism, innovativeness and decisiveness. KTH is a dynamic environment with creative people who possess and develop extensive knowledge and exciting insights. KTH is a place for people who seek inspiration to innovate and develop. Our research leads to discoveries that open up new opportunities for ourselves and others. Education, research and innovation come together in an integrated interplay. Administrative support is relevant and professional.

KTH is open-minded and curious about what other people are doing and what they can contribute. We represent an optimistic and solution-orientated perspective and want to be an arena where the significance of research and education for
the development of society can be discussed. KTH attracts and develops talented people. Success is achieved through joint efforts by employees and students. The active collegial influence at KTH is expressed through the organisation of the faculty.

KTH's campus environments are an important part of KTH's identity. They should be perceived as being creative, sustainable and international meeting places for students, teachers and researchers. KTH Campus is becoming an integrated part of the connected Norra Djurgården – Albano – Hagastaden city of science. The campus area will be a dynamic part of the city day and night. In Flemingsberg, the campus is being developed adjacent to Karolinska University Hospital and in Kista, KTH is already integrated into the surrounding research and business environment. In Södertälje, there is strong expansion of education and research in close collaboration with trade and industry and the municipality. More dynamic campuses will increase their attractiveness for both students and staff and will also attract new talent. Opportunities for collaboration will increase when there is more physical integration between KTH and the surrounding community.

The KTH brand is trusted. It must be nurtured and used in all contexts where it is natural: employees and students identify themselves as 'KTH-ers' and KTH students, teachers/researchers and administrators should be comfortable presenting themselves as such. The development and strengthening of the KTH ethos will continue. KTH is a strong brand and it is to KTH researchers the media turn to when they need explanations for various techno-scientific questions. A major challenge is to strengthen the brand of KTH in the international arena.

KTH’s core values

KTH’s core values are based on democracy, the equal worth of all people, human liberties and rights, and free and open discussion. Gender equality and the rejection of all forms of discrimination are both a matter of quality and a self-evident part of KTH’s core values. Equality and diversity among employees and students is also an important resource for KTH.

KTH’s activities are based on the conviction that education and research can and should contribute to better living conditions and to societal development that is ecologically, economically and socially sustainable. As a technical university, KTH has a special responsibility to develop and communicate knowledge that is needed to promote such sustainable development. Activities are to be done in such a way that KTH’s resources are used efficiently but without compromising quality and service.

The future of science is based on openness and collaboration. KTH is working for the active dissemination of knowledge, free exchange of information, and both national and international forms of cooperation.

---

1 From KTH’s Policy of Ethics, established by us on 1 December 2015
2. Overall goal

»Through excellence in research and education and by partnering with the world around us, KTH will continue to strengthen its position as one of Europe’s leading technical universities.«
• KTH’s position as a leading technical university will be strengthened and manifested on the most relevant ranking lists

• The share of students who graduate will increase considerably

• KTH will have more leading-edge researchers

• Collaboration with external players will be facilitated and increase in scope

• E-learning should be an integral part of KTH’s education

• The share of women on the faculty and among the students will increase and equality will be improved

• KTH’s campus environments should be characterised by creativeness and sustainable development
»KTH students and employees are our most important assets and success factors.«
Creating excellent environments

KTH’s students and employees are our most important asset and our foremost success factor. A crucial factor here is the people that we recruit and the opportunities and creative freedom we allow them. Moreover, it is vitally important that these individuals collaborate in groups and environments of creative and scientific excellence. The research and education environment should attract the most suitable and motivated people to apply to KTH. The environments are to be challenging without being insecure. Security is achieved through predictable and long-term conditions. The environments should foster cooperation while allowing the individual to develop.

In order to realise KTH’s goals, we need to reflect more deeply on the criteria for excellence and the prioritisation and distribution of resources. An important source of information in this process is the results of the evaluations that have been done on research, education and administration (RAE 2008, RAE 2012, EAE 2011, AAE 2014).

Sweden is a small country and if we are striving for excellence, we need to think globally in terms of recruitment and marketing. With this approach, a larger part of the faculty will be recruited from abroad. KTH needs to be more proactive in supporting employees who move here with accommodation and accompanying family members.

Excellent environments require excellent leaders. KTH will invest in leadership - both academic and administrative - at all levels. Leadership with personal responsibility is necessary to create an even more attractive workplace. People in leading positions are responsible for everyday activities as well staff well-being and strategic development. Good leadership should be seen as part of the complementary skills needed for an academic career.

Equality and diversity of the faculty

Efforts to increase the share of women on the faculty must continue and be complemented by more concrete measures so as to achieve results faster. The notice procedure is one example of a tool that can be used for this purpose. The linking of adjunct, affiliated and guest staff to the faculty can also be an effective tool for achieving more diverse environments and, in the longer term, contributing to a more diverse composition of the faculty. Developments in this area must be followed up at KTH, school and department level.

KTH will continue to investigate the mechanisms that contribute to the uneven gender distribution of senior positions within KTH in order to identify and eradicate problems. All KTH staff in leading positions should be made aware of these mechanisms.

There are people on the KTH faculty who have experience and previous careers from many different parts of the world: about one hundred nationalities are represented. This diversity should permeate our management positions at various levels and should correspond to the composition of the faculty as a whole.
Recruitment

Before recruiting for a faculty position, it must be analysed whether the appointment in question fits into the long-term strategies of the department, school and KTH, and whether there are enough students and research funding within the field in question. When there is a need for recruitment in research and education, notifications within the tenure track programme, postdoctoral appointments or doctoral studentships should be considered first. In environments that are particularly education or research intensive, there may also be a need for permanent contracts for researchers or lecturers. Moreover, there is a need for technicians, engineers and administrative staff for the development, maintenance and operation of the research and education environments. All positions at KTH should be advertised in open competition with the exception of the calling of professors in special cases.

The recruitment process should be developed so it is clear and recruitment should follow KTH’s long-term strategies and needs. In the recruitment process, search committees will be used to find suitable candidates on the basis of the appointment profile. All stages of KTH’s employment processes will be analysed in order to optimise the procedures and improve communication.

There should be clarity and predictability as regards the terms that apply for new employees and what resources can be placed at their disposal. A system for offering a start package to new employees should be set up and introduced during the period and a contract with clearly stated expectations should be drawn up at the start of the appointment.

Development opportunities for everyone

At KTH, all employees should have the possibility to develop and advance in their careers. Teachers and researchers should have the opportunity to go on exchanges of varying lengths, for example at other universities, in trade and industry or at government agencies. There should also be opportunities for staff to devote a term solely to research. It is essential that these exchanges be assessed as providing a useful qualification for the person’s future career. Different kinds of staff training will also provide opportunities for career development, not least for administrative staff.

The tenure track programme is the main pathway for teachers. This programme should be developed further, particularly with regard to career support for younger members of staff. The possibility of building up a mentor system for the whole faculty will be investigated. In addition, attention must be paid to research appointments that lie outside the tenure track. The faculty should consist of a cohesive and dynamic network where it is natural to have contact with colleagues who work in other subjects. KTH should strive to increase teachers’ and students’ knowledge about and interest in issues concerning the environment and sustainable development.

For a long time, the higher education sector has endeavoured to upgrade the status of teaching. It is now time to take concrete measures to change prevailing views as part of the strengthening of the quality and status of education. Educational development work should be an integral part of a teacher’s career development.
### Goals 2017 (Revised development plan 2013-17)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Current (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of teachers with higher education teaching qualifications</td>
<td>at least 40 per cent</td>
<td>2015: 30 per cent</td>
</tr>
<tr>
<td>Share of women on the faculty</td>
<td>at least 25 per cent</td>
<td>2015: 19 per cent</td>
</tr>
<tr>
<td>Share of new professors who are women</td>
<td>at least 20 per cent</td>
<td>2013-15: 28 per cent</td>
</tr>
<tr>
<td>Share of new senior lecturers who are women</td>
<td>at least 25 per cent</td>
<td>2013-15: 22 per cent</td>
</tr>
<tr>
<td>Share of new associate senior lecturers who are women</td>
<td>at least 30 per cent</td>
<td>2013-15: 18 per cent</td>
</tr>
</tbody>
</table>

### Goals 2016 (Development plan 2013-16)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Current (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of teachers with higher education teaching qualifications</td>
<td>at least 40 per cent</td>
<td>2012: 22 per cent</td>
</tr>
<tr>
<td>Share of women on the faculty</td>
<td>at least 25 per cent</td>
<td>2012: 19 per cent</td>
</tr>
<tr>
<td>Share of KTH’s new professors who are women</td>
<td>at least 20 per cent</td>
<td>2012: 24 per cent</td>
</tr>
<tr>
<td>Share of KTH’s new senior lecturers who are women</td>
<td>at least 25 per cent</td>
<td>2012: 33 per cent</td>
</tr>
<tr>
<td>Share of KTH’s new associate senior lecturers who are women</td>
<td>at least 30 per cent</td>
<td>2012: 18 per cent</td>
</tr>
</tbody>
</table>

The government has set a quantitative goal for KTH which states that 20 per cent of new professors are to be women. In accordance with this, 30 per cent of new associate senior lecturers and 25 per cent of new senior lecturers who are appointed during this period are to be women.
4. Education

»Competition for the best students is becoming global as courses are increasingly being offered on the Internet and teaching materials are easier to access. This means that the virtual campus is as important as the physical campus.«
KTH is a technical university. That means education is a central part of the university's activities and education must be based on scientific grounds. The goal is that all members on the faculty will both teach and perform research. The research that is being done at KTH will thereby have an impact on education.

One measure of the quality of KTH's education is that the students who are duly qualified, have been recruited and admitted, complete the entire study programme and graduate with good results. In order to successfully achieve this quality target, different demands will be placed on KTH's different study programmes.

Recruitment, admission and mentors

Education in technology should be emphasised as a natural choice for young people who want to contribute constructively to sustainable societal development. In recent years, a greater number of first choice applicants indicates that interest in studying at KTH has grown. However, this interest cannot be taken for granted. Recruitment measures must continue and be intensified in certain areas, for instance, in order to increase the share of female students.

The goal of recruitment is to attract students who have the will and abilities to complete their studies. A student's initial period at KTH can be decisive in the student wanting to continue their studies. Of course this applies to the learning environment, the quality of the teaching and study administration, but also to the way the student union receives the student. The reception given to students is the joint responsibility of KTH and THS.

During the period, KTH will investigate further possible alternative forms of admission.

Student completion

Another very important long-term issue is ensuring that students complete their studies and graduate. KTH needs to collaborate with employers and other seats of learning to show students the value of completing their degrees. At both central and school level, KTH will develop its range and structure of programmes in order to improve student completion.

During the period, KTH will continue to develop and implement student completion dialogue tools. The dialogue tools will enable the schools, in dialogue with the management, to draw up development plans for each study programme in order to achieve improved student completion and pass rate.²

The results during the first year of study are a central factor for efforts to increase a study programme's completion. It is essential that the development of programmes, particularly the longer programmes, include an investigation and analysis of student completion through the programme. Pass rates are a measure of whether the students complete their studies. Even if students can move ahead career-wise without formally graduating, a degree from KTH is an important measure of KTH's attractiveness, quality and brand.

For international students, KTH will work to produce a set of regulations that motivates them to complete their degree.

¹ During the period, KTH will strive to bring about a permanent increase of student completion for each of the three types of programme: Master of Science in Engineering/Architecture, Bachelor of Science in Engineering and Degree of Master. This will be expressed as a positive trend over the period for the indicators 3a (student completion year 1), 3b (student completion halfway through the programme) and 3c (examination grade), all in accordance with the definitions agreed upon in the national collaboration project Ung Ingenjör (Young Engineer).
Equality

Equality in KTH’s study programmes will increase. Equality management will be developed and intensified in teaching and learning and the content of the study programmes. As regards the content of study programmes, the aim is that KTH will produce engineers who are able to work in an equality-orientated way even in work situations that are marked by inequality.

Programme structure

KTH’s study programmes will be characterised by a strong research base and by social and professional relevance, and sustainability. KTH will continuously develop its programmes as regards both the development of knowledge and professional relevance. There must be contact with research and the labour market right from the start of the study programme.

More distinct programmes and programme profiles

In order to attract interested and motivated students, there must be more distinct and transparent pathways into KTH. This applies to both the first-cycle and second-cycle levels. The range of study programmes will be reviewed; and in some cases this may entail merging some of them to create new, broader programmes. All study programmes should make efforts to strengthen their ability to attract students. At second-cycle level, the review of the number of Master’s programmes must continue to ensure the range of programmes reflects KTH’s strong research environments and the needs of society. The Master’s programmes can have tracks which will make the subject profiles more distinct. In the first instance, new programme initiatives should be designed as tracks within these broad, general programmes.

More distinct programme responsibility

One of the main conclusions from EAE 2011 was that it is often unclear where responsibility for a programme lies and the people in charge have neither the resources, nor the mandate that should accompany the task. During the development period, the programmes’ status should be strengthened. KTH’s schools will ensure that programme managers are given sufficient time to take responsibility for their programmes and are given access to skills development that equips them to lead the educational development work within the programmes.

Environment and sustainable development

EAE 2011 made it clear that many programmes need to improve their efforts to integrate environmental and sustainable aspects. The work to ensure they all attain the development goals linked to these issues is ongoing. All programmes at KTH must be able to state how the intended learning outcomes stated in the Higher Education Ordinance, as regards the environment and sustainable development, are guaranteed. Longer term, sustainable development will be integrated into all study programmes at all levels so that after graduating, students can contribute to a sustainable development of society.

Increased choice and international tracks

All M.Sc.Eng programmes should be adapted to include 30 credits of individually chosen courses. These could include international tracks with language studies at a university in the target language country. Students choosing this option could broaden their studies or specialise in a certain area.

It should be possible for the international partnership programmes that KTH has set up within EIT, Erasmus Mundus and Nordic5Tech to be ways out for appropriate Master of Science in Engineering programmes.
Educational development

Educational development work should be an integral part of KTH’s activities and teachers’ career development. Educational development should also focus on increased student completion and pass rate. The development should be supported by a structured research environment in technological scientific learning and facilitate the exchange of lessons learned.

Educational programme for KTH

KTH aims to be a leader in the development of technology education. New technical solutions for education and an increased educational awareness in the world of higher education means there are strong grounds for creating an educational programme at KTH. The programme should inspire and motivate teachers to strive for educational development and diversity.

One way of improving student completion is to develop examination formats. This question is linked to educational development since examination is one part of the chosen educational method for each course. Ideally, the teacher will consciously choose the method that will best promote learning in the context of the course in question. In general, there should be more continuous examination with laboratory experiments and web-based written assignments.

The goal is that the students will be inspired and encouraged by their studies and that the quality of KTH’s qualifications will increase. A development project will be launched, based on the study, to investigate how all study programmes at KTH could include creative elements and provide students practice in open questions, preferably by interacting with the local community.

Learning environments

Competition for the best students is becoming more global as courses are increasingly being offered on the Internet and teaching materials are easily accessible. This means that the virtual campus is becoming just as important as the physical one. Considering these aspects and the globalisation of education, KTH must be prepared to take rapid action to execute an initiative within, for instance, e-learning. This is not a matter of distance education of the classical type; this is a paradigm shift where the virtual dimension is integrated into education. At the same time, the significance and added value of physical presence on campus should be emphasised.

A structure and organisation will be established to embrace the needs and ambitions of education activities efficiently, as regards KTH’s learning environments. Within the framework of this structure, these needs and ambitions will be prioritised and turned into functional solutions in both the physical and the virtual learning environments. Classrooms and other premises should be made more flexible to support different educational work methods.

The academic resource centre, ARC, introduced in 2012, should be developed into a well-established and integrated part of educational activities. It will consist of a wide range of services for the students; from admission to graduation. ARC’s range of services will be easily accessible for all KTH students at all campuses and on the Internet.
Internationalisation

Today, KTH’s students come from many different countries and our campuses have an international and multi-cultural character which helps to increase the quality of both the range of programmes and the study programmes themselves. KTH will therefore strive to retain and develop the internationalisation of its programmes.

During the period, some English programmes at first-cycle level will be started up within strategically prioritised areas. Such programmes will be aimed at both international students and Swedish students who want their studies to have an international profile.

More fee-paying students

The internationalisation of KTH’s study programmes has to a high degree been based on an increased number of incoming students from non-European nations. The introduction of tuition fees has reduced the size of this group of students who are important for KTH’s profile, development and study environment. Because of this, KTH’s goal is to register 750 new paying students in the autumn of 2017. Special measures must be taken to recruit whole groups of students. At the same time, recruitment measures in, for instance, the prioritised regions of Brazil, India, China and South-East Asia need to be reinforced and supplemented with initiatives in other regions that are identified as being strategically appropriate.

More outgoing exchange students

KTH is striving to achieve a balance between incoming and outgoing exchange students. KTH’s goal is that 700 students will spend at least one term at an exchange university within the framework of their studies at KTH. With the support of the university KTH’s schools need to find new ways of encouraging students to make use of existing exchange agreements to strengthen their education and life experience by spending a period of study at a seat of learning abroad.

Third-cycle education

Complementary skills

More and more Ph.D.-holders work outside the academic community for all or part of their working life. Therefore, third-cycle education must include complementary skills that prepare the doctoral students for different types of tasks they may be faced with both within and outside the academic community. An overview of the programme syllabi for the doctoral programmes should be performed during the period and we should investigate the situation of scholarship-funded doctoral students.

More Ph.D students from companies and government agencies

Vision 2027 states a doubling of the number of doctoral degrees in line with KTH’s long-term strategy to expand at second-cycle and third-cycle level. This expansion presupposes an increase in external funding which in turn requires targeted interventions by KTH in order to rouse the interest of new financiers among companies and government agencies. Doctoral students who have their main employer outside KTH (known as externally employed doctoral students) play an important role here in strengthening relevance and quality. The large number of externally funded doctoral students can in itself have a stimulating effect on further collaboration.

With increased interest in a shorter doctoral programme, we have developed a two-year licentiate degree that is strongly affiliated with a collaboration partner. KTH will conduct trial activities for doctoral students from different organisations that are linked to some of KTH’s schools in a common graduate school.
Supervisors
Successful third-cycle education is dependent on skilled supervisors. It is important that the role of a supervisor is highly valued and that supervisors are offered relevant continuing professional development, for example, in equal treatment issues. Using adjunct/affiliated teachers as assistant supervisors is one way of strengthening collaboration and links to professions and business affiliations.

Common degrees
During the period, the work to create structures for double and common degrees for the study programmes at all levels of education will be intensified. This applies primarily to collaboration with universities abroad.

Contract education and continuing professional development
Continuing professional development is essential for Swedish companies’ competitiveness and for society at large. KTH will offer professionals opportunities for continuing professional development, and reach out to engineering professionals. The volume of contract education should increase and this would also strengthen collaboration.

Teacher training
Now that the teacher-training programme can award degrees, it is also responsible for research and the development of knowledge within the field of technology science and learning. KTH will take an active role in the continuing professional development of teaching professionals. The technology programme that was introduced in the altered/revised/changed upper secondary school syllabus/programme/curriculum in 2011 contains some new and more cross-disciplinary subjects such as “humans and industry”. Here, KTH has the chance to offer high-quality continuing professional development support to schools. As of 2016, KTH offers supplementary educational training (KPU).

KTH has a head start on other teacher training institutes through its close contacts with relevant industries. This is a guarantee that technology teachers’ training is not just based on current research; it also provides an accurate picture of working life. The technology teachers at compulsory school play a key role in rousing the interest of young people in technology and KTH plays a key, national role in developing a modern, science-based and professionally relevant teacher training.
### Goals 2017 (Revised development plan 2013-17)

<table>
<thead>
<tr>
<th>Category</th>
<th>Target 2017</th>
<th>Target 2015</th>
</tr>
</thead>
</table>
| Number of first choice applicants in autumn term 2017                   | Master of Science in Engineering programme: 4200 (Autumn term 2015: 3718)  
Master of Science in Engineering programme: 1100 (Autumn term 2015: 1061) |             |
| Share of women among beginners                                           | Master of Science in Engineering programme: 37 per cent (2015: 34 per cent)  
Bachelor of Science in Engineering programme: 27 per cent (2015: 25 per cent) |             |
| Number of students who spend at least one term at an exchange university | 700 (2015: 662) |             |
| Number of paying students who will be registered in the autumn term 2017| 750 (2015: 440) |             |
| Number of externally recruited beginners at second-cycle level from EU/EES who will be registered in the autumn term 2017 | 850 (2015: 814) |             |
| Number of doctoral students admitted during 2013-17 period              | 1450 (2011-15: 1428) |             |
| Number of degrees during the 2013-17 period                             | Master of Science in Engineering: 5400 (2011-15: 5054)  
Master of Science in Architecture: 480 (2011-15: 450)  
Master of Science who has not studied the Master of Science in Engineering programme at KTH: 4000 (2011-15: 3913)  
Bachelor of Science in Engineering: 1750 (2011-15: 1601)  
Degree of Doctor: 1450 (2011-15: 1329) |             |

### Goals 2016 (Development plan 2013-16)

<table>
<thead>
<tr>
<th>Category</th>
<th>Target 2016</th>
<th>Target 2015</th>
</tr>
</thead>
</table>
| Number of first choice applicants in autumn term 2016                   | Master of Science in Engineering programme: 4000 (Autumn term 2012: 3483)  
Master of Science in Engineering programme: 1000 (Autumn term 2012: 815) |             |
| Share of women among beginners                                           | Master of Science in Engineering programme: 35 per cent (2012: 32 per cent)  
Bachelor of Science in Engineering programme: 25 per cent (2012: 23 per cent) |             |
| Number of students who spend at least one term at an exchange university | 700 (2012: 509) |             |
| Number of paying students who will be registered in the autumn term 2016| 1000 (2012: 189) |             |
| Number of externally recruited beginners at second-cycle level from EU/EES who will be registered in the autumn term 2016 | 700 (2012: 364) |             |
| Number of doctoral students admitted during 2013-16 period              | 1750 (2009-12: 1524) |             |
| Number of degrees during the 2013-16 period                             | Master of Science in Engineering: 4120 (2009-12: 3656)  
Master of Science in Architecture: 380 (2009-12: 322)  
Master of Science who has not studied the Master of Science in Engineering programme at KTH: 1750  
Bachelor of Science in Engineering: 1110 (2009-12: 1088)  
Degree of Doctor: 1000 (2009-12: 893) |             |
»KTH will confidently take the initiative in groundbreaking research on the back of its leading-edge skills and creative, dynamic and well equipped research environments.«
KTH’s research will contribute to technical solutions to several of the major challenges facing humanity in the 2000s. KTH will be known for its ability to identify at an early stage and take on existing and future global challenges. This is possible because the research done at KTH covers a wide range of subjects, is of excellent quality and is well integrated with society and contemporary issues. In order to find solutions to global challenges, both research and the perspective of research must be long-term. KTH can, with confidence, take the initiative in groundbreaking research thanks to its researchers who have leading-edge skills and its creative, dynamic and well-equipped research environments.

Through a well-developed communication strategy for research and innovation, KTH’s research should be made visible as far as possible, both for the international science community and society at large. KTH’s database for publications, DiVA, can be used in a strategic way to highlight research results.

On the basis of the results of RAE 2012, KTH intends to strengthen its research environment as a whole through a number of measures. RAE has shown there is a need for the further strengthening of base resources for basic research, to increase the opportunities for long-term research undertakings with a higher risk. RAE has also provided KTH with a comprehensive status report on all infrastructure at KTH which will form the basis of future investments.

**Infrastructure for research**

The situation of funding for Swedish research infrastructure has changed in recent years. Large, national and European initiatives have been given priority. Small-scale infrastructure has continued to be funded by individual research groups or institutions. Medium-sized investments at the level of seat of learning have previously been supported by research councils and foundations, but they will no longer finance them. Therefore, KTH needs a comprehensive, strategic and long-term plan for investments in infrastructure. The plan needs to be continuously revised in step with new priorities on the part of research. It must also be possible to break it down into school-specific parts. All schools should have their own investment and maintenance plan for infrastructure.

In order to increase transparency and accessibility to existing research infrastructure, virtual laboratories will be set up on KTH’s web sites within certain general areas. For larger scale initiatives, efforts will be made to set up regional collaboration with relevant seats of learning in the Mälardal area. The same applies for the setting out of common strategies in relation to the large national facilities.

KTH will offer its researchers first-class support in the handling of research administrative issues. When this works in an optimal way, academic leaders can concentrate their time, energy and creativity on academic leadership instead of admin.
Interdisciplinary and multidisciplinary research

KTH's research has become more interdisciplinary and multidisciplinary thanks to, among other things, research platforms and the setting up of centres. More stimulating measures are needed to consolidate this development. The conclusions from the evaluation of the platforms that has been done will be used as a basis for further development.

Research funding

KTH will be one of the ten leading universities to receive funding from the EU programme Horizon 2020. KTH will also have as many recipients of ERC funding as comparable technical universities in Europe. This requires an active commitment to all the channels into the technology platforms of strategic significance for KTH at EU level. The funding of research will also be of a more global nature.

Thanks to KTH's drive to recruit younger members of staff and focus on strategic fields of research, the outcome of applications to the Swedish Research Council and other financiers will probably improve during the period. And, as regards research funded by trade and industry, KTH has the potential to increase its share considerably.

Innovation

KTH will strive to find new models for cooperation and collaboration. In this context, the research platforms are important since they make major societal challenges visible, facilitate contacts with trade and industry and government agencies, and inspire the creation of new research collaboration projects.

To measure the extent to which innovation-related activities give the desired outcomes, result indicators must be established. To strengthen KTH's interaction with society, we are working on a general strategy for what is known as 'impact work'; and a key element of this is the further development of strategic partnerships with companies where long-term collaboration is evolving. KTH Innovation plays an important role in supporting the faculty and the students and their opportunities to commercialise their research findings and ideas.
Science for Life Laboratory (SciLifeLab)

As a result of the government’s strategic research initiative within the field of life science, in 2010 the Science for Life Laboratory (SciLifeLab) was set up with two centres - one in Stockholm and one in Uppsala - with the support of the government’s strategic initiative. During the 2013-17 period, SciLifeLab will develop into one of the world’s leading centres for research within life sciences. Moreover, SciLifeLab will be a national resource for life sciences and the parts of trade and industry and public activities that are related to these research fields. As a recipient of the state funding and the body with administrative responsibility for SciLifeLab, KTH plays a central role in the collaboration with Karolinska Institutet, Stockholm University and Uppsala University.

European Institute of Innovation & Technology (EIT)

The European Institute of Innovation and Technology (EIT) was launched in the EU as an independent body within research, innovation and education and its purpose is to be a driving force in sustainable European competitiveness. Today KTH is a leading partner within the EIT with its current involvement in four KICs.

In the coming years, it will be important to consolidate and integrate EIT KIC activities in KTH’s research and education environments. Within EIT, there are also plans to open up calls for KICs in new areas. It is our ambition to be a co-applicant within fields that are key for KTH.

Environment and sustainable development

In 2015, the UN set up 17 global goals for sustainable development up until 2030. KTH’s research can help to provide solutions for several of these. KTH’s research will develop, apply and spread technology, methods, approaches and knowledge that contributes to sustainable development. KTH’s goal is to increase research that promotes sustainable development.
### Goals 2017 (Revised development plan 2013-17)

<table>
<thead>
<tr>
<th>Funding from Swedish and foreign companies</th>
<th>SEK 270 million (2015: SEK 168 million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding from the EU and other international players</td>
<td>SEK 400 million (2015: SEK 311 million)</td>
</tr>
<tr>
<td>Number of new ERC grants during the 2013-17 period</td>
<td>25 (20 during 2011-2015)</td>
</tr>
<tr>
<td>Field-normalised citation rate</td>
<td>1.2 (2015: 1.11)</td>
</tr>
<tr>
<td>Number of quality-reviewed articles</td>
<td>3100 (2014: 2683)</td>
</tr>
</tbody>
</table>

### Goals 2016 (Development plan 2013-16)

<table>
<thead>
<tr>
<th>Funding from Swedish and foreign companies</th>
<th>SEK 270 million (2012: SEK 178 million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding from the EU and other international players</td>
<td>SEK 400 million (2012: SEK 311 million)</td>
</tr>
<tr>
<td>Number of new ERC grants during the 2013-16 period</td>
<td>20 (15 during 2008-2012)</td>
</tr>
<tr>
<td>Citations, publication</td>
<td>+25 per cent compared with 2012</td>
</tr>
</tbody>
</table>
6. Cooperation

»Understanding the changing needs of society and industry is key to KTH supplying the relevant skills to an innovative, competitive and sustainable private sector and the public sector.«
KTH has a long tradition of productive collaboration projects with the public and private sectors. It is important that this collaboration is strengthened because it is central to the development of KTH. It will become increasingly important for KTH to understand the changing conditions of society and trade and industry to be better able to provide the relevant skills for innovative, competitive and sustainable trade and industry and the public sector. Therefore, there must be more clarity as regards what is being done to increase the exchange of knowledge and collaboration with society. Collaboration activities will help to strengthen KTH’s long-term contribution to society, help to link the KTH brand to competence, responsibility and relevance, and ensure that KTH is viewed as being an attractive partner for students, researchers, trade and industry and society. KTH’s goal is to increase the visibility of KTH activities that are linked to the environment and sustainable development.

In first-cycle education, all programmes must be able to display their degree of collaboration which will clarify and strengthen their professional relevance. A “KTH collaboration model” will be developed, documented and communicated during the period. An important step in following up its progress will be to develop collaboration indicators that reflect collaboration activities and, when used with other indicators, these are taken into account when principles for the distribution of resources are set out.

Alliances with other seats of learning

Universities in the region, in Sweden and abroad face many of the same challenges. Closer collaboration with other seats of learning will strengthen KTH’s activities and brand. In the Stockholm area, contacts with Karolinska Institutet and Stockholm University will be intensified in areas where it is clear that synergy that effects can be achieved. Collaboration with arts colleges, especially the University College of Arts, Crafts and Design, will also be developed.

It would be positive if more external players who can contribute to KTH’s development established themselves on campus. OpenLab, which will be completed during the period, will be a natural meeting point for KTH, the surrounding community, and trade and industry. This initiative has been developed through collaboration between the universities and close cooperation with Stockholm County Council, the County Administrative Board and the City of Stockholm. Activities at OpenLab can focus specifically on highlighting how research and education at the seats of learning are dealing with the future challenges that society faces. Students will be able to work with needs-driven innovation projects.

During the period, KTH will also strive to enter more strategic alliances with international seats of learning. Such alliances will be broad-based, span several sectors and include universities that are leading in a relevant field. In this context, the alliance with the University of Illinois can serve as a good model.
Partnerships with companies, the public sector and organisations

From a regional perspective, KTH is an obvious collaboration partner for Stockholm County Council, the City of Stockholm and other municipalities of relevance, and for other public sector bodies. This helps to make use of KTH’s research and education and improves KTH’s standing in society. KTH may need to develop forms of collaboration specifically for the public sector. In order for people who have studied at KTH to be able to be a more active force in society, both students and researchers need more knowledge about how society and the forming of public opinion works.

The development collaboration that has been established with selected companies and organisations will continue and be organised more clearly. A structure for partnership with different levels of ambition will be set up and the initiation, operation and annual follow-up will take place through a common process. One challenge is to develop partnerships with smaller companies that can become major companies in the future. Here, development work is needed, not least the drawing up of criteria, and it would make sense to work with companies that KTH is already in touch with. One indication of the quality of KTH’s and other seats of learning’s collaboration is that companies choose this region as the place where they set up their development departments. The environment and sustainability are examples of long-term issues of interest for trade and industry to collaborate on. Through collaboration with existing and new partners, KTH will strive to contribute to sustainable societal development.

Infrastructure in a broad sense is a field where collaboration is of strategic significance. Alliances will be developed to secure access to and the development of strategic infrastructure. KTH will continue to develop collaborations with nearby research institutes, not least to strengthen regional competitiveness.

Adjunct and affiliated staff

The exchange of personnel between KTH and relevant companies, organisations and authorities is one way of mutually increasing competence and strengthening the KTH brand. Moreover, the professional relevance of the study programmes can be increased through more input from teachers who are already working in their field.

The number of adjunct and affiliated staff will be increased. A system for exchanges of a more short-term nature will be developed to faster meet the needs of users. KTH will strive to increase the number of KTH employees who are co-opted to the public or private sectors.

Externally employed doctoral students who move between KTH and the surrounding community are an important aspect of the long-term work to increase exchanges. They can be co-opted to affiliated and adjunct persons, as well as to degree projects that can be done at their respective places of work.

The merit value of relevant professional experience outside the academic world needs to be increased and in collaboration with employers, research financiers, SUHF and internal recruitment committees, KTH will strive to achieve this.
Fundraising

Fundraising requires the long-term building of relations with strategic partners and networks that have available capital. This capital can provide KTH with initiative and greater freedom to use its own discretion. During 2013-2017, KTH intends to gradually increase funding via fundraising. As well as for research and education, fundraising is a real possibility for other urgent needs, for example, student accommodation.

In addition to providing funding for research and education, fundraising also helps to develop KTH’s activities. Fundraising as a central activity and promoting KTH with the private financiers target group, requires well thought-out and coordinated communication, and a long-term strategy for the KTH brand.

The work during the period will be linked to 2017, the year that marks the 100-year anniversary of KTH’s Campus and thereby serves as an appropriate framework for KTH’s first large-scale fundraising programme.

KTH alumni

A successful alumni programme creates added value for KTH generally, and especially with regard to strengthening the KTH brand, promoting student recruitment and increasing the chances of donations. Alumni activities are responsible for strategically and operationally creating, managing and growing former students’ relations and commitment to KTH.

In 2017, alumni will naturally partner with KTH in strategic development and everyday activities. Alumni should be visible to students and the faculty as inspirers, mentors and donators. An alumni fund will be set up and there will be an annual fundraising campaign. The alumni fund will contribute funding for student and research projects and scholarships for third-country students.

KTH’s global network of alumni will be developed and “Alumni Chapters” will be established in, for instance, KTH’s prioritised regions. Every year, international alumni activities will create opportunities for meetings and networking between alumni, between students and alumni, and between KTH’s faculty and alumni.
Goals 2017 (Revised development plan 2013-17)

<table>
<thead>
<tr>
<th>Goal</th>
<th>2017</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of international strategic university partners</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Number of strategic collaboration agreements with industry and public sector players</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Number of adjunct professors</td>
<td>100</td>
<td>64</td>
</tr>
<tr>
<td>Number of affiliated teachers and researchers</td>
<td>150</td>
<td>61</td>
</tr>
<tr>
<td>Number of externally employed doctoral students</td>
<td>350</td>
<td>240</td>
</tr>
<tr>
<td>Number of externally employed licentiate students</td>
<td>20</td>
<td>7</td>
</tr>
</tbody>
</table>

Goals 2016 (Development plan 2013-16)

<table>
<thead>
<tr>
<th>Goal</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of international strategic university partners</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Number of strategic collaboration agreements with industry and public sector players</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Number of adjunct professors</td>
<td>100</td>
<td>48</td>
</tr>
<tr>
<td>Number of affiliated teachers and researchers</td>
<td>150</td>
<td>29</td>
</tr>
<tr>
<td>Number of externally employed doctoral students</td>
<td>350</td>
<td>260</td>
</tr>
<tr>
<td>Number of externally employed licentiate students</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>
»KTH campus environments will be characterised by superior technology and mirror KTH research into areas such as new materials and sustainable development.«
Campus environments

KTH's campus environments should be characterised by leading-edge technology and reflect KTH's research on, for example, new materials and sustainable development. This approach will be applied to future campus building projects. KTH should strive to develop its campuses so they become more attractive to researchers, students and visitors. The areas should be more dynamic, both day and night, for instance, through the building of student accommodation.

Both physical and virtual environments should be developed into meeting places that stimulate innovations. Classroom premises should be adapted and planned for flexible forms of teaching with integrated e-learning.

KTH must have close contacts with regional and municipal decision-makers and be proactive in speeding up the development of the campus areas. Forward-looking development plans for campuses, buildings and land will be drawn up.

KTH Campus has a unique location as an inner-city campus. The area has developed organically and therefore has an open structure that has many positive features but it can seem difficult to grasp. The campus should therefore be given a clear communicative form. The building of a new entrance with a new building for the School of Architecture will be completed during the period and the entrance will be a landmark and an orientation point. KTH was environmentally certified in accordance with ISO 14001 in 2015 and will retain that certification. Decisions were taken in 2015 regarding sustainability policy and sustainability goals for the 2016-2020 period which KTH will work with systematically.

Kista has developed into a university area that is characterised by its integrated industrial activities. This development will continue and it was highlighted in 2013 by the 25th anniversary celebrations of KTH's establishment.

The School of Technology and Health in Flemingsberg will be developed further and in close collaboration with Karolinska University Hospital, Södertörn University and Karolinska Institutet, within the field of medical technology and life science.

A new campus will be built in Södertälje and is planned to be ready for use in 2017. Research and education within sustainable industrial production is being developed and it will expand dramatically by 2020. The activities will be closely linked to trade and industry and Södertälje municipality and will be supported financially with new state funding.
Administration

KTH’s administrative resources, both at KTH schools and central level, should be characterised by a high level of competence, efficiency and service. They will provide support to authorities, staff and students in order to achieve the desired excellence. Proactive and development-orientated action must be taken to find solutions for different staff issues, financial, logistical and other challenges. Continuous external analysis is an essential tool in this work.

The administration should be an integrated part of KTH’s core activities. As part of KTH’s quality development, the administrative support will be evaluated during the development period.

Policies and regulations will be revised so they are in line with the plans and activities that are proposed in the development plan.

Goals 2017 (Revised development plan 2013-17)

| Number of student homes on campus | 1000 (2015: 131) |
| Share of premises costs | Maximum 16 per cent (2015: 15.75 per cent) |
| Share of central administrative costs | Maximum 21.8 per cent (2015: 21.8 per cent) |

Goals 2016 (Development plan 2013-16)

| Number of student homes on campus | 700 (2012: 72) |
| Share of premises costs | Maximum 16 per cent (2012: 16.5) |
| Share of central administrative costs | The percentage rate of the contribution margin will not increase during the period (2012: 22.09 percent) |
Development Plan 2013–2017

Production: University Administration, KTH and Klirr Stockholm.
Photography: page 14 Carl Hjelte and pages 22, 28 and 34 Adam af Ekenstam.