



**KTH Architecture and
the Built Environment**

School of Architecture and the Built Environment

**Engineering
Urban Economics and Planning
Architectural Design**

**Building Knowledge for a
Sustainable Society**

Strategic Plan 2009 – 2012

Approved by the ABE School Board, Sept 15th 2009

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Preface

This strategic plan is developed as a response to the KTH strategic plan 2009-2012, the KTH Research Assessment Exercise (RAE) 2008, and the KTH Future Faculty plan 2007-2010. It is further an update of our recently approved Development Plan 2009-2011, which was developed by our former Dean and approved by the Board as late as November 2008. The process of developing this strategic plan during spring 2009 has been processed in the organisation through our management team and the School board, and relies in addition on the above mentioned documents and the strategic discussions within our organisation that was prompted by the RAE process.

The document differs from the previous strategic plan in that we have edited out most parts of the text that primarily function as a presentation of the school, and instead focus on pointing out our principal strategic goals. This strategic document will therefore be followed by an updated presentation leaflet on the School, as well as more detailed yearly action plans on both school, department and research centre levels.

Stellan Lundström and Katja Grillner
September 2009

1. The School of Architecture and the Built Environment

The increasing demographic and economic importance of cities makes it more important than ever to achieve a sustainable urban development. The built environment is calculated to stand for over 60% of the Swedish national wealth and to be responsible for over 40% of our total energy consumption. To meet this challenge, new knowledge, technical and organisational innovations, as well as a renewal of educational programmes are needed, demanding a closer interaction between universities and urban stakeholders, such as city governments, construction and real estate companies, and NGOs. Addressing the threat of global warming, while at the same time developing urban landscapes offering a good quality of life and rich business opportunities, requires new technology as well as economic and social policy initiatives.

The School of Architecture and the Built Environment (ABE) has a profile that fits well with these requirements. We provide research and education within several disciplines and areas related to urban development, design and technologies for the built environment. We have frequent communication and interaction with diverse urban stakeholders. The School's educational programmes and research encompass architecture, infrastructure engineering, building engineering, land surveying, transport and water resource techniques, as well as urban and real estate management, environmental strategies, economics and risks associated with the development of modern communities.

Our educational programmes are among the most popular at KTH and a recent KTH-wide Research Assessment Exercise demonstrated that several of our research groups are world leading. We should be proud of that as well as follow the advice given to increase our rate of publication of research results in international peer review journals.

Among our top priorities for the coming years are: strengthening our identity as a first-class environment for educating and developing knowledge for engineers, planners and architects working together towards a sustainable built environment, strategic renewal of faculty, initiatives to foster a better balance between women and men among faculty and in positions of leadership; and further adaption of our educational programmes to fit with the Bologna model.

In order to bridge the gap between urban research and practice, we must increase the efforts to develop our inter- and transdisciplinary research as well as our outreach activities. Examples of new initiatives are an Urban Design Academy, a Building Material Academy, a Forum for Industrial Building Technology and Architectural Design.

Given the School's profile of research, education and community activities, a focus on urban sustainable development is not only a moral obligation. It is an opportunity to make a real world difference.

Our vision is to build a world-class research and education institution producing knowledge, services and innovations for a sustainable built environment.

In 2012 KTH ABE

- Has developed a strong identity as a cohesive and interdisciplinary environment for education, research and innovation across the field of architecture and the built environment.
- Education and research is characterised by excellence and social relevance
- Belongs to the top echelon of architecture and engineering educations in Europe
- Has an international university faculty promoting international exchange among faculty and increasing post-doctoral exchange
- Is an attractive cooperating partner for international and national university institutions, for our sector industry, NGO's, public institutions, and society at large.
- Attract the best Swedish students on bachelor level, and top international students on master and PhD-levels. They maintain a good gender balance and recruit students from a broader socio-economic background than today.
- Will have executive programs that are demanded from private and public sectors.
- Is an attractive workplace characterised by good academic leadership, professional administrative management and organisation.
- Has increased international exchange among students at all levels. Graduates from ABE are attractive on the international employment market.
- Consider, in all operations, sustainable development from an ecological, economic, social and technical point of view

To arrive there we need to

- Strengthen the identity and brand of the School
 - As a resource to KTH, the professions, industry and society
 - As a resource for all divisions, educational programs, research groups, employees and students at the school
 - Develop strong interdisciplinary research clusters
- Improve academic leadership, administration, and organisational structure
 - Improve management skills (HR, gender and diversity)
 - Strategic faculty development (career support and recruitment)
 - Develop school level administration
 - Improve gender balance
- Promote internationalisation (education and research)
 - Improve bilingual communication within the school
 - International accreditation for educational programs at all levels
 - Promote international scientific publication
 - Increase international exchange - students, faculty, post-doc
 - Increase funded participation in international research projects
- Apply sustainability perspectives (ecological, social, economical)
 - On all strategic research and education plans
 - As a motor in the development of interdisciplinary research clusters within the school
- Develop concepts of social entrepreneurship and innovation
 - Training the students to take up a role as more than reliable consultants - seeing themselves as innovators of future services, systems, technologies, and designs for a socially responsible and sustainable built environment
 - Form research strategies that include implementation ideas of this kind - (i.e. beyond commercial product and patent-driven focus)

2. Education

The ABE School was formed around – and is responsible for – two five-year educational programmes leading to degrees as Master of Architecture and Master of Science in Civil Engineering and Urban Management. The architectural education on bachelor and masters levels has an independent organisation with its own educational board, deputy dean, head of programme, and administration. Since the School started, we have initiated a Bachelor of Science in Real Estate and Finance and several new two-year master's programmes. Since the autumn 2009 the School has taken over the Bachelor of Science in Engineering program in Construction Engineering and Design, as well as two two-year programs from the KTH STH School. Further the school is engaged together with three other KTH Schools in planning a new five year engineering programme in Energy and Environment, scheduled to start the academic year 2010/2011. We have around 2600 students enrolled. 300 of these are PhD-students. The gender balance in our student population is good.

The educational programmes currently offered at our School are:

Five year programmes

Master of Architecture 300 c.

Master of Science in Civil Engineering and Urban Management 300 c.

Three year programmes (outside of Architecture and Civil engineering programs)

Bachelor of Science in Real Estate and Finance 180 c.

Bachelor of Science in Engineering – Construction Engineering and Design 180 c.

Two year university diploma programs

University Diploma in Construction Management 120 c

University Diploma in Constructional Technology and Real Estate Agency 120 c

Two year Master of Science programs

Architecture, 120 c.

Architectural Engineering, 120 c.

Economics of Innovation and Growth, 120 c.

Environmental Engineering and Sustainable Infrastructure, 120 c.

Geodesy and Geoinformatics, 120 c.

Infrastructure Engineering, 120 c.

Real Estate Development and Financial Services, 120 c.

Sustainable Urban Planning and Design, 120 c.

Transport Systems, 120 c.

Water System Technology, 120 c.

Licentiate and doctoral degree programs

PhD- and licentiate programs are currently offered in the following academic subjects. These divisions are currently under revision as part of the transition into doctoral programmes.

Architecture

Civil and Architectural Engineering

Business Administration

Economics

History of Architecture

History of Technology

Infrastructure

Land and Water Resources Engineering

Philosophy

Education – Overall goals

- To deliver undergraduate and graduate programmes that educate leaders and qualified consultants able to develop the built environment with respect to technology, economics, quality, aesthetics and long-term sustainability.
- To deliver doctoral programmes that provide the foundation for a career in scientific research. Licentiate and Doctoral graduates should also be qualified for leading research positions within universities, firms, organisations and agencies both in Sweden and abroad.
- To sustain a dynamic interface between the education, the sector industry, and society providing our students with a broad perspective on future career opportunities.

Program development – key challenges

- Clarify vision, strengthen coherence and progression for the S-program
A project to evaluate and develop the program in distinct relation to industry and research demands is being initiated autumn 2009.
- Strengthen research/education interface
 - Increase education input from strong research environments
 - Develop design research potential in architecture masters-studios
- Engage in the development of the new Energy and Environment Civil Engineering program and prepare to host the program if placed at ABE.
- Strengthen collaboration between architecture and engineering programs
- Increase exchange and integration between our five year programs (Civil engineering and Architecture) and our Masters programs.
- Integrate Haninge campus engineering and university diploma programs

Internationalisation – key challenges

- Meeting international and national competition for students at masters / advanced level internationalisation and international exchange
- Initiate international accreditation of educational programs
- Develop strategy to handle the implementation of tuition-fees 2010/1011
 - Assessment of probable impact
 - Investigate alternative funding mechanisms for students
 - Stengthen marketing function
- Continue to develop our programs in relation to the Bologna system and adapt to its effects on student mobility and international exchange

Pedagogic development

- Promote formal pedagogical training for all teaching staff
The architecture program is currently developing a model which encourages all teachers to participate and step by step build up formal competence
- Program and course specific pedagogical development:
 - Implementing CDIO in all programs by increasing the general awareness of the CDIO model among teachers and review its specific significance for our different programs and courses.
- Improve awareness of gender, diversity, equal opportunities
 - Addressing these perspectives in pedagogical workshops
 - Teaching how these perspectives affect professional practice in engineering, planning, and design for the built environment.
- Quality assurance systems
 - Review systems of course evaluation and course analysis
 - Asserting that our courses keep up with international front-line positions in both research and practice

Doctoral programs

- Reformed structure of the doctoral programs' subject divisions including a review of course curricula for all doctoral programs
- Support the students more efficiently to complete postgraduate studies within the expected time (4 years)
- Course development and collaborations
 - Joint introduction course for all new PhD-students at ABE
 - Promote development of cross-disciplinary PhD-courses within the School
 - Structured national collaborations around PhD-courses with other universities (such as Bygguniversitetet and Arkitekturakademin).
- Increase interaction between masters and PhD-level
- Promote international peer-review publication during PhD-studies
- Promote international study-periods of 3-6 months
- Increase post-doctoral exchange
 - Promoting newly graduated students to international and/or industrial post-docs
 - Seeking funding to host international post-docs at KTH ABE

Student reception, influence and support

- Academic introduction on undergraduate-level will be developed further by reviewing existing introduction courses.
- Student influence reviewed in relation to representation in the organisation, and participation in program and course development.
- Existing mentor-programs for students will be further developed in collaboration with student representatives based on exchange with professionals outside KTH. Mentors for students will not primarily be drawn from faculty.
- Systems for peer-support among students will be developed
 - To support undergraduate students' academic introduction
 - To welcome new international masters students
 - To introduce new post-graduate students

Student recruitment

- Broaden the socio-economic base for student recruitment. Efforts with expected long term effect on reaching new student groups:
 - The School of Architecture has during 2008/09 initiated *Tensta Arkitekturskola* which based in Tensta gymnasium
 - Real Estate and Financing bachelor's program collaborates with Botkyrka gymnasium.
 - Support exchange between KTH-Campus and KTH-Haninge
- Improve marketing material – web-based and printed – for the educational programs.

Enrolment figures and throughput

- The ABE-school works systematically with increasing student throughput in all our programs countering problems in a number of different ways (see separate report to KTH, June 2009).
- Specific efforts need to be made to increase in particular the throughput in the BSc of Engineering programs at KTH Haninge.
- Enrolment and throughput aims (basic and advanced levels): Exact figures are reviewed annually in the mission-contract.
- Quantitative goals for annual PhD/Licentiate-degrees: 35/20

3. Research - scientific fields and research centres

Research at the School of Architecture and the Built Environment is conducted within seven Departments (corresponding in KTH terminology to Scientific Fields) and six research centres (see fig 1 and Ch 7). Strategic research plans are developed at department and centre level, as well as in individual research groups. Strategic initiatives at School level have the principal responsibility for enabling and strengthening interdisciplinary collaboration within the school in focus areas, as well as to strengthen scientific excellence and societal relevance.

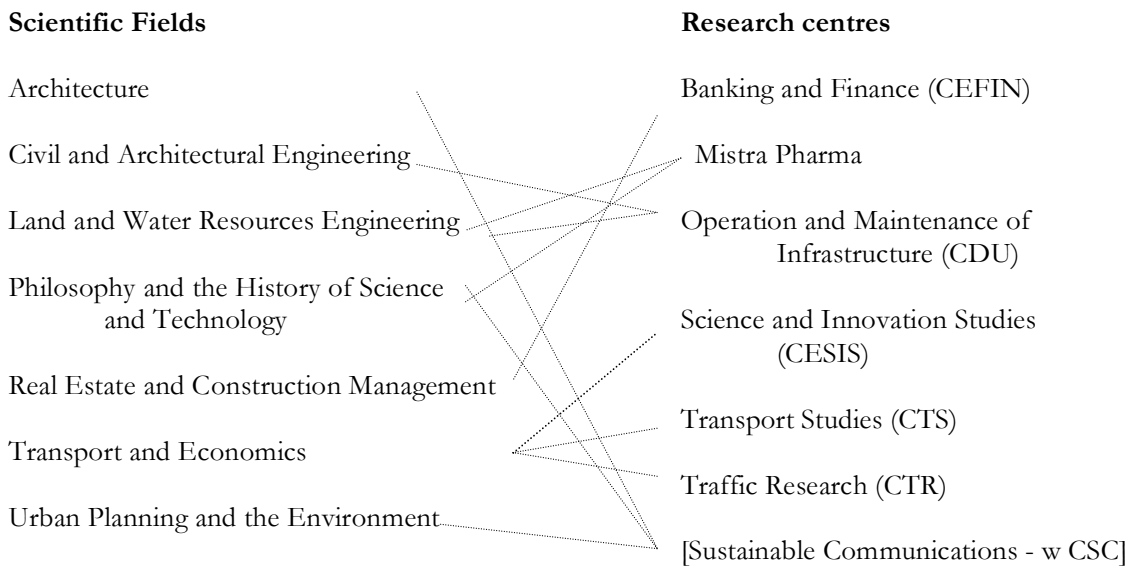


Fig 1: Current Scientific Fields and Research Centres and their principal connections

The school is participating actively in KTH's research platforms, in particular in the Energy, Materials and Transport platforms, and identify as our crucial responsibility to contribute with our specialist and multidisciplinary research expertise, as well as the societal perspective that characterises our school. In relation to the 2009 strategic funding bids the School has a leading role in the successful application for transport research, TrenOp. This provides an excellent opportunity to further expand and consolidate of our world-leading research in this area. Several research groups in the School participated as key-partners in other successful university- and nation-wide collaborations resulting from this bid, such as the energy research initiative StandUp, and the risk and crisis management program Security Link.

The School further identifies the need to build interdisciplinary research clusters within the school to strengthen our ability to respond on high scientific level to the complex problems posed by urban development today. We have identified two principal areas in which to initiate broad research clusters: 1) Sustainable urban development and 2) Technology and design for a sustainable built environment. In the first area the school is proposing to establish a research centre engaging networks and industry partnerships established through the 2009 Mistra-application, as well as building on current collaborations in the Academy for Urban Design and the Urban Design and Planning masters programme. The second area involves at the core the Departments of Civil and Architecteneering, Land and Water Resources Engineering and Architecture and will build from recently initiated fora such as the Building Materials Academy and Forum for Industrial Building Technology and Architectural Design.

Strategic measures are taken on school level to promote scientific excellence and societal relevance by rewarding international publication in referee journals, and by supporting with faculty funds the establishment of different fora for critical exchange between research and industry.

Research – School level goals

Developing broad interdisciplinary research clusters

- Design and Technology for a Sustainable Built Environment
- Sustainable Urban Development (related to Mistra-application)

The suggested clusters share a focus on sustainability from a social, economical and ecological perspective, but differ in relation to their material applications thereby engaging and building bridges between different parts of the school.

The ambition with these clusters is ultimately to promote larger funded projects in these areas with industry- and international research partnership, that is go further than providing the opportunity for academic networking.

KTH research platforms

The school is participating actively in KTH's research platforms, in particular in the Energy, Materials and Transport platforms contributing with our specialised and multidisciplinary research expertise as well as the societal perspective that characterises our school.

Increase international research projects/partnerships (EU etc)

- By establishing strategic interdisciplinary clusters
- By encouraging strong research environments to form strategic partnerships specific to their specialisation
- Acknowledge existing strengths, center formations, and identify the need in some areas to build critical mass through collaboration between universities (for example 'Bygguniversitetet')
- A structured collaboration between the four architectural educations in Sweden is being formed during 2009 with the purpose of strengthening in particular research and doctoral studies. The initiative is developed in close contact with Formas.

Increase scientific publication and citation

- Provide clear incentives (resource allocation, visibility, promotion)
- Develop alternative modes of evaluating scientific productivity in fields that currently fall outside of, or are misrepresented by, conventional bibliometric methods

4. Collaboration

The School of Architecture and the Built Environment has a strong tradition of extensive collaboration with sector industry, governmental and municipal authorities, and NGO's in its research activities. The significant number of research centres based in the school (5+1) further strengthens our position here. We have a strong teaching input from professional architecture and engineering consultants in the architectural education, as well as in the bachelors and university diploma programs at Haninge Campus. The organisation KTH-Bygghuset plays a key-role, establishing links between students and industry and taking responsibility among other things for parts of the introductory activities for both civil engineering and architecture students.

Collaboration and outreach activities

Hosting academic and professional meeting points

The School has established a number of academies or fora for interaction between researchers, industry, and professionals in our fields. Recent initiatives are:

- Urban Planning and Design Academy (initiated 2007)
- Building Materials Academy (initiated 2009)
- Forum for Industrial Building Technology and Architectural Design (initiated 2008)

Continuing education and executive programs

Continuing education and executive programs constitute important opportunities for knowledge exchange between the academy, industry, and individual professionals in our fields. They may further provide teaching opportunities with high specialization that links very directly to on-going research.

- Expand the number of executive programs across the school
- Continue to expand packages of continuing education courses

Alumni network

- Strengthen alumni network in all programs and promote open house activities, exhibitions of student work and open lectures.
- Collaborate with existing professional organisations to form KTH-alumni groups there

Industrial faculty, partnerships and fund-raising

- Establish an identifiable industrial faculty within our school by highlighting current adjunct and affiliated professors
- Survey existing industrial partnerships in research centres and projects and develop strategy for strengthening our long-term relations to key-partners
- Develop fund-raising strategy using industrial faculty, partnerships, and marketing efforts

5. Faculty Development and Equal opportunities

Upon decision by the KTH President we are currently in the process of renewing and strengthening our faculty in the Department of Civil and Architectural Engineering where the majority of professors are retiring within one or a few years. 2 new professors will be appointed in 2009 and 3 more are scheduled to be announced. Several new associate professorships are also currently being announced in different departments in response to the need to increase the number of teaching positions. 16 professors are currently aged 63 or older, a project will therefore be launched to develop a joint faculty development strategy, taking into account the proposed tenure track system. The faculty has an imbalanced gender structure. A far higher share of men than women have teaching positions among those that have achieved a PhD degree. The leadership structure is also imbalanced.

Faculty development

Facts, figures, HR- administration

- Make yearly progress reports describing the faculty structure and school organization from a gender and diversity perspective
- Develop a continuously updated school level chart mapping the academic subjects, positions, and current faculty showing gender and age
- Improve school-level process for handling faculty recruitment and promotion

Developing academic leadership

- In relation to equal opportunities, gender and ethnicity
- In relation to HR management (career support etc)

Recruitment and tenure track

- Long-term recruitment plans and improved career planning guidance need to develop at school- and department level in response to the faculty age and gender structure and in relation to a future tenure track system

Improve gender balance

- Among decision makers
- In boards and committees
- Among faculty

A firm policy should be developed to prioritize this question

Promote network formations (guided by common interests)

- A network of women faculty and researchers at ABE would
- Establish informal connections between different parts of the school
 - Provide a supporting structure for career development
 - Make women faculty more visible to each other and the whole school

6. Infrastructure, Administration, and Economy

The School is organised into the seven departments and six research centres shown in figure 1. The departments and research centres are formally independent but work closely together within subject areas of common interest. The centres are formed together with external stakeholders and are almost fully financed by external sources. The School employs 650 people altogether, 190 of which have faculty positions. A review of the organisation of the School's administration was undertaken in 2008 together with KTH's central administration and the School for Industrial Engineering and Management. A common conclusion is that we need to increase the specialisation within the administrative functions to meet demands for expertise in contracting, reporting and other skills required for our educational programmes and research.

The total expenditure for the School's operation in 2008 was SEK 387 million and income SEK 394 million. Salaries accounted for 62 percent of expenditures, and the President's disbursement for undergraduate and postgraduate education and research represented 56 percent of income.

The School's departments are quite varied in size and have diverse income structures. For example, Architecture had SEK 69 million in income in 2008, which is almost double that of Philosophy and the History of Science and Technology. Architecture's appropriation for undergraduate studies represented 74 percent of all income, while for the Department of Land and Water Resource Engineering, this figure is only 17 percent. The Presidential appropriation for doctoral education varies, for example, representing 31 percent of income for Building and Architectural Engineering and 13 percent for Real Estate and Construction Management. The external research appropriation's share of total income ranges from 51 percent for Philosophy and the History of Technology to only 8 percent for Architecture. Income profiles for research centres are naturally dominated by external research grants; every "KTH-krona" generates four kronor in external income.

Resources appropriated to the School in accordance with the President's contract will increasingly be allocated based on performance. Funds for undergraduate education are first divided between Architecture and the rest of the School, based on the President's criteria. The balance of funds are thereupon distributed to the rest of the School in proportion to the number of full-time students and completed work, with respect given to course content and technology requirements. The internal division of resources for doctoral education is based solely on the number of graduated doctoral students. The majority of School funds for research, SEK 42 million in 2008, is distributed in accordance with the President's directive regarding activity support, support to research centres, etc. A smaller share, about SEK 10 million in 2008, was distributed based on success in scientific publishing and in generating income from external sources. Finally, remaining funds (about SEK 10 million) are distributed by the Dean to support the priorities outlined in the Development Plan.

An internal project is underway to develop activity indicators and indexes that reflect best practices for the School's departments and to more quickly identify economic imbalances. This work will be continued in the coming years and the School will also develop tools to measure the School's international position.

Infrastructure and Administration

Campus facilities

- Develop strategy for concentrating ABE-school facilities on campus
- Develop strategy for teaching and research laboratories
- In 2012 The Architecture School will move to a new building

Develop administrative support at school level

The School is currently working with improving its administrative quality and efficiency by co-organising school level support for

- Economy
- HR
- IT-infrastructure and support
- Information and Public Relations (new recruitment, full time position)

Academic organisation:

- Improve collaborative leadership to promote dialogue and knowledge transfer
 - Between departments
 - Between educational programs
 - Between courses and individual faculty
- Improve internal resource allocation system
- Developing our organisational structure
 - Reviewing the functioning of the steering committee
 - Reviewing responsibilities of other committees
 - Communicating the structure throughout the organisation

Concluding reflections

To realize our vision, the School is actively working to meet our development goals. The basis of our strategy to meet the goals is twofold. Common funding will be used for projects furthering inter- and transdisciplinary research focused on urban sustainability and initiatives strengthening our educational programmes. And the resource allocation to reporting units will, to an increasing extent, be subject to economic incentives supporting the overall goals for the School. Departments that attract and graduate more students, publish research more frequently in international journals, and generate external research funding and other sources of income will be awarded a higher share of the internal resources. Those departments and educational programmes that fail to live up to the School's goals and financial requirements will be reduced in size or phased out.

A core component of our strategy is to encourage and provide initial funding of school-wide projects and activities. The work undertaken in 2008/09 with the application to the Mistra call concerning "Urban Futures" is a telling example; the work involves representatives from almost all parts of the School, research groups from Stockholm University and different urban stakeholders. This effort has resulted, while unfortunately not in securing the Mistra-funding, in the establishment of both a strong academic network as well as a constellation of engaged industry partners that together wish to continue as a research centre on innovation and urban sustainability. This is an important result that the School is determined to support.

Other strategic actions include measures to strengthen the student influence, and educational initiatives and seminars that can develop all personnel – in particular those with a leadership role. It is important to ensure excellent competence and skills in addressing issues of gender equality and ethnic and cultural diversity. To achieve a better balance in the leadership structure, the School will provide career development guidance to female researchers and teachers. Moreover, the School's educational programme will focus on gender and diversity issues, both within the School, as well as in society in general.

The third mission, including cooperation with the entire community, is a very important part of the School's goal-oriented work. Such activities contribute to strengthening cooperation with the business community and public agencies, as well as developing contacts with our region at large. This also increases the potential for generating financial support for research and development projects.

Besides these strategies and tasks, the School's efforts to achieve its development goals will focus on developing performance indicators and indices measuring "best practice" for the School's departments, and develop instruments and tools for benchmarking the School's international position. Our journey toward this goal is already well underway.

7. The School's Scientific Fields and Research Centres

Architecture

The Department of Architecture has recently undergone changes in its academic structure. A large number of new faculty have recently been recruited while several professors and researchers have retired. Its next phase of development involves, bridging the gap between graduate studies and studies at PhD level, rework the Study Program for the Bachelor level of the education, year 1 – year 3, further development of Architectural Technology and strengthen the integration of digital technologies for design and fabrication at Bachelor level as well as at Masters level. The newly implemented academic structure allows for an improved stability of the curriculum and creates better opportunities for both pedagogical development and for meeting international and national competition for qualified students. In 2009 new masters studios have been introduced in Landscape Design and Critical Studies and a communication strategy is being developed through the project “1000 days of architecture”. Highest priority is given to the development of Architectural Technology, to develop critical understandings of technical process and sustainability in architectural teaching and research. Further strengthening the education and research in Urban Design is also prioritised, focussing on social and environmental sustainability.

Civil and Architectural Engineering

The Department of Civil and Architectural Engineering is currently undergoing a re-organisation of academic divisions due to the majority of professors retiring and in accordance with recommendations from the 2008 external survey of the department and the KTH RAE 2008. The new organisation comprises four groups with 2-4 professors per group. The department has, in line with the new recruitments, a great potential to become an international leader and focal point for the integration of advanced multidisciplinary new scientific knowledge into engineering solutions for the building, transportation, and construction sectors. In order to accomplish this goal, it is necessary to realign Civil and Architectural Engineering by introducing new, modern cross-disciplinary programmes including: Long-life buildings, materials and transportation infrastructure components; Sustainable design and construction methods for buildings and infrastructure components; New high productivity building concepts and construction methods; Monitoring and maintenance systems based on “smart” sensors and advanced computer information technology. The highest priority at the department during 2009 and 2010 is to complete a successful recruitment process and secure international excellence, while continuing to build a well-integrated educational environment for engineers at both KTH-campus and KTH-Haninge.

Land and Water Resources Engineering

The Department of Land and Water Resources Engineering aims to contribute toward sustainable development of the society, with particular emphasis on efficient management of natural resources and the maintenance and development of infrastructure, as well as urbanisation. The activities at the department incorporate both natural and technical sciences including the societal perspective that ranges from local and regional to national and global scales. The department is focused on development of research in four key areas: water systems technology; applied geosciences; environmental assessment and management; and environmental physics. These areas build on a long tradition at the department of focusing on the interactions between engineering systems, the environment and the society, and on the competences developed at the department in collaboration

with a variety of institutions within and outside KTH, as well as industry. Priorities within these four main areas have been described in more detail as part of the RAE document. The department is currently undergoing a special review by an external panel that, following the RAE evaluation and recommendations, will look closer at the current department organisation including its research and education profile. Laboratory resources are of critical importance for the department and a strategy is being outlined for securing long-term funds in order to maintain experimental facilities.

Philosophy and the History of Science and Technology

The department consists of two divisions, the Division of Philosophy and the Division for History of Science and Technology. In the recent RAE made at KTH, the board of KTH was urged to “develop a strong vision of the role and place of research and teaching in these fields at the KTH.” The department sees it as an important task to contribute to the development and implementation of such a strategy. Both divisions performed as world-leading research environments in the KTH RAE 2008 and received a joint RAE-bonus which will be used to strengthen the faculty in both divisions by recruiting two new associate professors (initiated spring 2009). In addition to its philosophical research on risk, the Division of Philosophy conducts empirical risk research in two areas: regulatory toxicology and behavioural studies of risk and safety. The Division for History of Science and Technology has a unique combination of historical sub-disciplines: history of technology, history of science, environmental history and industrial heritage research. What gives coherence to its research is a common, deep interest in a spatial and material perspective on the past. Of high priority for both divisions is to strengthen their respective educational roles in the engineering programs at KTH generally and in the ABE-school.

Real Estate and Construction Management

The department consists of three divisions – Real Estate Planning and Land Law, Building & Real Estate Economics, Project Communication – and the Centre for Banking & Finance (Cefin). A key issue for the future is to achieve sustainable funding for research to create research groups with a critical mass. A research group “Forum for Industrial Building Technology and Architectural Design” has recently been formed along with the departments of Architecture and Civil and Architecture and Engineering. One aim of the forum is to extend its network other departments, in Sweden and abroad. Of highest priority is a new professor in real estate law. That professor could be recruited in collaboration with the faculty of law at the Stockholm University. Today, the department is one of the biggest units in the world concerning delivery of graduate and undergraduate courses related to land management and real estate. Since 2009 the department hosts the KTH-Haninge University Diploma Real Estate Agency program. A near-term activity is to have an international accreditation by the Royal Institute of Chartered Surveyors (RICS) for programmes with international students.

Transport and Economics

The Department comprises five divisions: Economics, Traffic and Logistics, Transport and Location Analysis, Safety Research, and Geodesy. The Department collaborates closely with three centres: Science and Innovation Studies (CESIS), Traffic Research (CTR) and Transport Studies (CTS). In the recent RAE, research, scholarship, vitality and potential of the researchers, as well as the stated research strategy, were highly ranked. Following the RAE suggestions, steps will be taken to increase the international visibility and impact by increasing participation and organisation of

international conferences, increasing publication in leading international journals and increasing collaboration with leading international scholars. The Department received a RAE-bonus in 2009 and plays a leading role in the successful KTH application for strategic government funding for transport research, thus expecting a significant increase of faculty funding for this area. Intelligent decision support for transport services and systems and for strategic evaluation and appraisal will be developed for promoting a greener, smarter and safer transport system in collaboration with stakeholders and other KTH units within the Transport Platform. The research in economics including CESIS will pursue empirical work in the field of industrial dynamics based on large databases. Recent recruitments in geodesy will strengthen applied geodesy and GPS applications.

Urban Planning and the Environment

The Department of Urban Planning and the Environment is organised in three divisions: Urban and Regional Studies, Environmental Strategic Analysis, and Geoinformatics. The department's mission is to contribute to the scientific study of the theory and practice of planning, strategy and public policy with particular relevance to sustainable urban development. The department is to consolidate the position as the leading academic environment in Sweden, within the field of sustainable urban development. This position will be continuously strengthened and developed. We strive to be a centre of excellence of education, research and policy practice. There will be a concerted effort to establish the department as a leading international research environment, and an energetic academic player, in new fields of science repeating the success and level of excellence that the core of the department has historically achieved in the regional science and planning fields. A necessary reinforcement of the junior faculty is currently underway in terms of new assistant and associate professorships. To support the career development of young faculty is of critical importance for the department's long-term development.

Research Centres

Research is produced both within the ABE School's seven departments and in the research centres associated with the School. The primary goal of the School's research centres is supporting research, but they also have other important functions: facilitating multidisciplinary research and promoting cooperation between research areas. Moreover, they contribute to research education and publishing – and stimulate innovative thinking in education. The research centres currently associated with the School are listed below.

Banking and Finance (CEFIN)

The Centre for Banking and Finance (CEFIN) has a focus on retail banking, financial systems and the role of the financial system in community development. The Centre aims to become the leading centre and think tank for the whole Swedish financial industry. This position is possible to achieve through cooperation with other KTH departments such as Mathematics, IT, Telecom, etc.

MistraPharma

MistraPharma aims at reducing and identifying environmental risk caused by the use of human pharmaceuticals. The programme is funded by Mistra.

Operation and Maintenance of Infrastructure (CDU)

CDU's goal is to develop competence and knowledge regarding the operation and maintenance of technology infrastructure. The Centre produces research leading to licentiate and doctoral degrees in engineering and social sciences. CDU is distinguished from other ABE research centres in that its role is one of research "broker" rather than research producer. In this capacity, CDU finances licentiate and doctoral candidates in several ABE departments with funds primarily from The Swedish National Road Administration.

Science and Innovation Studies (CESIS)

The Centre of Excellence for Science and Innovation Studies (CESIS) is a research centre that produces studies of innovation systems with a specific focus on Sweden. The ambition is to provide a deeper understanding of the interdependencies between innovation and economic development.

Traffic Research (CTR)

The Centre for Traffic Research (CTR) coordinates and produces research and development within the analysis and simulation of traffic processes, and is a national resource for research and knowledge dissemination as well as researcher exchanges.

Transport Studies (CTS)

The Centre for Transport Studies was established in late 2007. Research comprises economic analysis, sustainable transport system studies, forecasting models, traffic simulations, transport system finance and organisation, interaction of transport and regional economy and transport user behaviour.

Centre for Sustainable Communications (CSC SUS)

Together with the School of Computer Science and Communication, the ABE School is also involved in the operation of the Centre for Sustainable Communications. This centre's mission is to enable innovative media and communication services to contribute to sustainable development.