



**LUND**  
UNIVERSITY

Board of Governors

## Research and Education Strategy 2009–2012

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### 1. Summary of Lund University's strategy for the next few years

Lund University (LU) is one of the leading and largest universities in Scandinavia, with annual turnover of around SEK 5.5 billion, nine faculties, around 6,000 employees and around 40,000 students. LU is at the top in Sweden as regards the allocation of external funds from the Swedish Research Council and the European Union; and it is a member of LERU (the League of European Research Universities), which consists of 18 leading research-intensive European universities.

From this position of strength, LU's overall strategy for education, research and innovation is to:

- *be a comprehensive university*

Our aim is to develop strong and multidisciplinary environments which enable both in-depth study of individual disciplines and crossdisciplinary activities;

- *maintain the highest quality of research and education, supported by professional and efficient administrative services, with resources being allocated on the basis of quality*

Our aim is twofold: first, to ensure, through quality assurance of all education and quality measurement of all research, that priorities and strategic decisions relating to research and education are based on adequate information; and, second, to ensure that all administrative work supports education and research in an effective and efficient manner;

- ***engage in crossdisciplinary cooperation***

Our aim is to promote creativity and optimise the use of resources. Crossdisciplinary cooperation includes education, research and innovation, and it encompasses cooperation between departments, faculties, research teams and individuals as well as cooperation with other higher education institutions in Sweden and abroad and cooperation with the community;

- ***optimise our infrastructure***

Our aim is to create the conditions necessary for internationally leading and innovative research and education by developing and providing optimal infrastructure;

- ***provide clear and expert leadership***

Our aim is to develop excellent leaders with good communicative skills at all levels, to reinforce links between teachership and leadership, and to view students as future leaders.

In this way LU wishes to help create new knowledge in a number of ‘meta-areas’ which are of particular future importance and in which LU is successful: life sciences; health and ageing; complex systems; climate-environment-energy-economics; advanced materials; economic, social and political systems; and human conditions including cultural and religious interaction, democracy, and human rights and obligations. All of these areas are complex and require cooperation across traditional subject boundaries. In order for such crossdisciplinary cooperation to be creative and productive, single-discipline research will have to form the basis and will have to develop further itself. Education will communicate the results of research. In order for good use to be made of knowledge, the innovation system needs to be further developed.

On the basis of these strategies, LU is ready to meet the future challenges facing research and education.

## **2. LU’s demands for improvements to national conditions**

The successful implementation of this strategy requires emphasis to be placed on the factors described below in the policy for research and higher education pursued by the Swedish Riksdag (parliament) and Government.

### ***Political focus***

There are today an excessive number of players engaging in issues relating to higher education and research, counteracting the concentration of power but also preventing the focusing of efforts at the national level. This is true of the Government and ministerial level, for scientific councils and foundations allocating funds, for quality assessors, investigators, regional bodies and others. There is thus first a need for greater concentration.

Second, there is a need for strong political signals about the importance of research, higher education and innovation in and to society. We therefore propose that the

Prime Minister should establish and lead a Knowledge and Development Council for Research and Higher Education – a reformed version of the Government Research Advisory Board. To this Council should be linked representatives of the major players in the field – such as the Swedish Research Council, the Association of Swedish Higher Education and the National Association of Student Unions in Sweden – and not just independent writers and commentators. LU is prepared to participate in discussions on this topic. There should be a more explicit aim to obtain greater concentration and a broad consensus to carry out long-term sustainable efforts in the field of research and education.

#### ***Better basic funding for quality strategies***

There is a need for a significant reinforcement of resources for both education and research, and it is important to change the distribution between externally and internally funded research so that universities have greater scope for setting their own priorities. At least one per cent of GDP should be allocated to non-military research, as described by the higher education sector and research funders in a letter to the Government. The funds allocated directly to universities should increase as they carry out quality measurements to underpin their internal distribution of resources. A larger share of existing and future resources should thus be given directly to universities and university colleges. A report from the Government's Globalisation Council contains a proposed time plan for how the 1% objective can be met.

An adequate amount of teacher-led teaching and supervision must be ensured in all areas, so that all education will be at a high academic level and so that students will acquire sufficient experience of applying their knowledge. Attaining this objective requires a substantial increase of resources for education, with longer periods of allocation.

The reasons for increasing basic funding are that a well-educated population is the best possible foundation for a society wishing to benefit from and contribute to the global development of knowledge. With increased funds, research may lead to results which will constitute strong incentives for the development of society and of businesses. Modern economic growth theory emphasises knowledge as one of the most important factors in wealth development. And in addition to these more utility-oriented arguments, LU also wishes to stress that a cultured nation sees research and education as vital expressions of human creativity and of self-actualisation.

The present model for recalculating prices and salaries leads to a progressive hollowing-out of government appropriations. This is not tenable. In future, recalculation in the higher education sector should reflect the actual development of costs. Requirements for productivity increases should be measured and expressed differently from at present.

The tax legislation should be amended to promote donations to research.

#### ***Incentives for cooperation***

There is a need for incentives for cooperation in research and education, both internally and externally (regionally, nationally and internationally). The Association of Swedish Higher Education has presented an action programme to promote cooperation, federations and fusions in regard to individual subjects, infrastructure, administration and entire higher education institutions. Initiatives should be taken to ensure that students' financial and housing situation enables additional student

mobility; teacher exchanges should increase. The Riksdag and the Government should support such initiatives through a special development fund. Universities should also be given the possibility to award joint degrees.

***Better infrastructure for research and education***

World-leading research requires world-leading research facilities. This is an area where European countries need to cooperate. The European Forum on Research Infrastructures (ESFRI) has presented about 30 important infrastructure projects, many of which are of great interest to Swedish research. Sweden has offered to host one of these projects, the European Spallation Source (ESS), which will constitute the basis for future multidisciplinary research. It is very important to ensure that this facility will be co-located in Lund with the national research facility MAX IV, which is the next-generation synchrotron-radiation facility. If and when these investments become reality, Sweden will host two world-leading research facilities for materials science in a broad sense, which will create a unique research environment of great importance to both universities and industry. LU will cooperate with other Swedish and European universities and with industry to maximise the use of both facilities and to optimise the service provided to researchers from other universities. For example, Sweden needs to develop better pharmaceutical research and LU is ready to participate, with MAX IV offering suitable infrastructure.

There is a need to reinforce infrastructure for education as well. Our new premises programme will focus on environments where learning will take place and where students will spend time.

***Concentrated innovation activities of higher quality***

Truly advanced innovation and commercialisation activities require a substantial increase of resources. One prerequisite in this context is national concentration to a small number of nodes for cooperation within geographical regions. Central government entities need to cooperate better. This will make it possible to combine regional links with strong expertise in patenting, licensing, intellectual-property rights and similar areas. A significantly increased share of existing funds for innovation at the national level should be allocated in this way. There is also a need for greater financial and organisational freedom of action for universities.

The proposed nodes should develop a system which is more sustainable and powerful than the present one. Using existing funds, LU has invested in a new, efficient organisation to ensure that employees' research findings and inventions are quickly and easily brought to the commercialisation stage. LU has also invested in research and education on entrepreneurship. As a result, LU is now ready to devote even more efforts to developing such a node. We expect to draft, together with Innovationsbron (a company in the field of innovation financing), a long-term strategy to exploit the great potential for innovation. To do this fully we will need a manifold increase in our resources and greater room for manoeuvre.

LU proposes that a small group of innovation and commercialisation experts at the highest possible international level should be made available at – or through cooperation with – a national centre such as VINNOVA (the Swedish government agency for innovation systems). If we cannot quickly gain access to such experts in urgent cases, the truly large innovation opportunities risk disappearing from Sweden to countries such as the United States.

***Better support to foster talent and develop leadership***

There is a need for better conditions to realise the development potential of talented employees and to develop leadership throughout LU. Opportunities for recruitment and promotion must improve. The recent proposal for a coherent career path for teachers and researchers at universities and university colleges represents an urgent reform which is necessary for higher education to attract and retain good teachers and researchers. Sweden and LU need to enhance the attractiveness of a career as a teacher, researcher or leader in higher education to remain competitive in the global knowledge market.

LU also wishes to spearhead the bringing together of teachership and leadership, thus providing students with training in leadership and increased awareness of ethical issues.

***Increased global cooperation***

To be able to participate in international research and development, Swedish research and thus LU must be world-leading in some areas and good enough in a great many areas. This is a prerequisite for being a partner capable of contributing to and sharing in international developments, as has been established at the European level through the Lisbon Agenda and the development of the European Research Area and the European Higher Education Area. Swedish research needs to position itself more in global cooperation with leading research universities and with environments where new teaching approaches for higher education are being tested.

***Enhanced freedom for universities***

Sweden needs free and strong universities. LU wishes to spearhead strategic work to signal even more clearly that universities, and LU in particular, must have the strongest possible academic independence as centres of ideas which are innovative and free and which play a constructive role in society. To attain this objective, universities need to be more open to accepting ideas from society as part of a dialogue, but they must not only reflect society but also actively influence its various sectors on the basis of research and established practices – not least through the students we educate. The central government, as funder of research and education, is the guarantor of academic freedom and of universities as intellectual sanctuaries, regardless of whether they are in or out of step with accepted opinion, whether they are politically correct or incorrect. This freedom of research and academic education needs to be emphasised by means of increased organisational freedom and room for manoeuvre for higher education and by means of reduced regulatory control.

**3. Lund University's strategic plan**

In its strategic plan for 2007–2011, LU has decided that its vision is for the university as a whole to be one of the very best universities in Europe. Some research is already world-leading while other research and education must be developed so that it becomes nationally leading.

The overall objective is for LU to maintain the highest quality in all education and research, and for its administration to be characterised by efficiency and professionalism. To attain this objective, all education and research will be subject to quality assurance, crossdisciplinary cooperation will be even further developed, internationalisation will permeate all operations, and leadership and teachership will be a development project.

Our summary (Section 1) and our requirements for the national level (Section 2) are based on this strategy, as are the following sections (4–13), which elaborate further on the strategy.

#### **4. Education**

##### *Highest quality*

All education at LU should be of the highest national standard – in many cases of the highest international standard – and have strong links to research. By means of research-based education, LU will train students who are able to develop the global knowledge society of the future.

To attain the highest quality in education, LU should be an attractive choice and should recruit students of both sexes with different social and ethnic backgrounds at the regional, national and international level. Our qualified diversity will be exploited to create new programmes characterised by crossdisciplinary cooperation, but we will also have the strength to close down programmes which are no longer needed.

The University early on defined the Bologna Process as a quality-oriented reform centred on students' learning processes, which has guided our work in relation to the reform of higher education. Quality assurance must be appropriately designed and be perceived as relevant by all those involved. Internal and external quality assurance will support each other and enhance quality. Greater importance will be attached to internationally recognised quality certifications, such as EQUIS, which the School of Economics and Management was awarded in 2001 and 2006.

##### *Quality assurance*

The tool that will enable us to attain the highest quality is quality assurance of education at the bachelor (first cycle), master (second cycle) and doctoral (third cycle) levels. Guidance for quality assurance of education until 2012 has been drawn up. An action plan for work on quality in 2007–2008 shows how the work should proceed, with quality assurance of new programmes, courses, degrees and internationalisation.

All new programmes will be validated before they are implemented; this is a fundamental component of quality assurance. The conditions for implementing new programmes will be examined with the help of external advisors. Before any students are accepted for a programme it must have been ascertained that the programme can be carried out at a good national and international level.

In the light of the reform of higher education and the new degree descriptions, with objectives laid down for all degrees, the focus of evaluation should be moved from the major subject or field to the entire degree. Methods for quality assessment should be developed through peer review of examination in relation to objectives and through external review of degree projects. Work will continue during the period to develop methods for student and teacher barometers, degree surveys and alumni surveys. The action plan identifies supplementary measures in relation to the national rules for the evaluations of main fields of study and programmes conducted by the National Agency for Higher Education, including development work relating to key ratios.

When the ongoing quality project is completed in 2008, the resource-allocation system will be linked to quality assurance. The resource-allocation system should promote the highest quality.

Programmes and degrees at all levels should lead to both employability and further studies. Second cycle programmes should both prepare for doctoral study and provide competitive labour-market skills, such as the ability to undertake qualified research and development work and other advanced tasks.

All faculties strive systematically to promote *employability*. For example, the Faculty of Engineering has introduced ‘engineering training’ – opportunities for students to gain experience from the private sector through education carried out at enterprises. The School of Economics and Management aims to provide a ‘capability-driven’ education which focuses not only on theoretical knowledge but also on ways to convert knowledge into capability in practical work. The programmes provided by the Faculty of Medicine are organised to enhance continuity among their various components and to reinforce links with research and clinical training.

### ***Quality before quantity – issues of size***

The overall strategy is for quality to have priority over quantity. LU is at present capable of educating 35,000–40,000 students each year. There is room for a modest expansion during a few years as cohorts of young people will grow.

Changes in the planned extent of activities over the next few years will take place mainly in second cycle studies. LU will offer advanced programmes with a clear link to research and assume greater responsibility for providing advanced education for more students – national and international – in addition to those receiving bachelor’s degrees from LU. LU will give priority to students taking full programmes over those who take single-subject courses.

LU is developing several new second cycle programmes which are linked to research, are relevant to the labour market and have access to qualified teachers. There are about 70 general-degree second cycle programmes, of which about 50 are given in English and recruit their students both nationally and internationally. We have today more international master programme students than any other higher education institution in Sweden, and this attractiveness enables us to undertake further expansion. It is cost-effective and strategically important to ensure maximum use of qualified diversity in second cycle programmes of study.

LU is expanding education at Campus Helsingborg, which attracts students with a different background from that of students who normally come to LU. This will be integrated in strategy work. Other strategic future projects are programmes for pharmacists (bachelor and master), an MBA programme, an extended medical programme, a programme for science journalists and teacher training in cooperation with the Kristianstad University College. Contract-based education and life-long learning will be further developed.

### ***Education at the doctoral level***

For a university like LU, which is both research-intensive and comprehensive, education at the doctoral level has a key role. Efforts at that level are a natural complement to our investments in second cycle education. All education at the doctoral level will also have a clear link both to second cycle education and to research.

Statistics show that perhaps a too large share of doctoral students have received their previous education at LU. While it is important to ensure that second cycle education

at LU can lead to doctoral studies here, it is equally crucial to increase both national and international recruitment to that level in future, in line with the Bologna reforms. Vacancies for doctoral studies will therefore be advertised nationally and internationally.

LU decided a few years ago to restrict the number of students accepted for doctoral programmes, which even so still meet the objectives set by the Government for the number of degrees awarded. Education at the doctoral level should be internationally competitive, have the highest quality and be linked to broad research environments – preferably across faculties or departments – in the framework of well-developed national and international cooperation.

The number of cooperative projects within LU will increase – such as through various types of graduate-school centres – involving cooperation with neighbouring higher education institutions under a framework agreement on cooperation in doctoral education. To this should be added cooperation in the framework of the Øresund University and Universitas 21 as well as at the level of research teams. All doctoral students will be given the opportunity to spend part of their programme at a foreign higher education institution while retaining funding for their studies. Increased use of English in education will be aimed for, and international courses and conferences should be a natural element of doctoral studies.

Doctoral programmes should prepare students for a non-university labour market. Only a minor share of young researchers can count on further employment as university researchers, and their career planning should include a preparedness to work in the private sector, at government agencies or in other organisations requiring qualified employees for management positions.

Doctoral studies should be financially secure for students, who should preferably be employed as doctoral students. Their individual study plans will be used to an even greater extent as a quality tool in their education, and recurrent student, supervisor and alumni barometers will form the basis of quality assurance of doctoral education. A large proportion of all research carried out at LU is undertaken in the framework of doctoral education, which will be included in the RQ 08 evaluation (cf. below).

## **5. Research**

As a comprehensive university, LU has a large number of areas where its researchers are at the forefront of international and national research. This is made possible by the good contacts that our researchers have with international colleagues as well as by LU's strategic infrastructure investments in a number of important areas. What is more, our researchers increasingly make use of opportunities for cross-disciplinary research.

Even so, LU can and must make even more strategic use of its opportunities; plan for advanced leading-edge research; become better at identifying the research potential of internal young and talented researchers as well as at recruiting external researchers; and constantly adjust its administrative services to ensure that they promote rather than hinder creative development.

### ***Highest quality***

A good way to gauge the quality of research at LU is to study competitively allocated external funds. LU is at the top as regards funds both from the Swedish Research Council and from the European Union. The scientific and administrative assistance

offered to applicants in various contexts will be enhanced. We consider it progress that the LU's basic resources in the form of faculty funds are allocated in part based on competitively allocated external funds.

Scientific advisory boards were established four years ago both at the overall university level and at faculty level. Several faculties are also establishing educational advisory boards. These boards meet at least once each year in Lund, and LU's governing bodies can call upon them between meetings for advice and ideas. The boards are very useful in discussions about strategy and for the assessment of applications.

To obtain an up-to-date picture of its research and the international status of this research, LU is conducting a quality evaluation (RQ 08) in the spring of 2008. This evaluation will combine self-assessment and peer reviews by internationally recognised researchers with a major bibliometric study to analyse patterns of publication and citation for our research entities. These two methods of investigation partly complement each other and partly overlap, which is why they will provide a good picture of the quality of research down to the department level.

Quality evaluation using peer reviews involves a great deal of work and the exercise will therefore be repeated only at five-year intervals to monitor developments and gauge the impact of actions taken. Bibliometric assessments will be carried out more often since they are based on researchers' reference lists, which are accessible in the LU Publications database.

The findings from RQ 08 and strategic assessments will form the basis for priorities at university and faculty level as well as for the development of new research areas and the winding down of weak ones.

*Examples of areas of strength at LU in various 'meta-areas'*

LU has strong or even very strong research in the meta-areas mentioned above. All of these include a large amount of research crossing the borders between subjects or faculties. Priorities will continue to be established not least in these meta-areas, but LU must also remain open to the emergence of entirely new research fronts and leave room for original new approaches outside today's mainstream.

*Life sciences* includes disciplines such as medicine and bioscience. At LU there is strong research in major fields such as neuroscience, cancer, diabetes, inflammations and stem cells. Other leading-edge research fields within this area include hand surgery, coagulation, protein structure and dynamics, genomic ecology, functional foods, proteomics and translational biomedicine.

*Health and ageing* is important in the context of meeting the needs of an ageing population. This meta-area includes strong research in health-care, geriatrics, occupational safety and health, and economic demography. LU will undertake cooperation within Universitas 21 to attain the UN Millennium Objectives. Research on the elderly is a strong research area which includes both experimental and clinical research, health and nursing studies and behavioural sciences. Research is carried out in close cooperation with the health-care system. Pharmaceutical research is also an important field in this context.

*Complex systems* exist in all activities and operations. Areas of application include the distribution of electricity and water, physical infrastructure such as roads and railways,

and information technology. All of these areas have both a physical aspect and a systemic aspect. Many complex systems can be described using common models and methods. Strong areas at LU in this context are information technology, communications systems, systems engineering and automatic control, cognitive science, and cellular and whole-organism biology. This meta-area also includes applications and important research in fields such as computational biology, statistical methods for cancer diagnostics and climate systems.

*Climate-environment-energy-economics* represents a range of top-level skills, long dispersed across LU, in research on the carbon cycle, political aspects of environmental research, combustion physics, renewable sources of energy, and other topics. The strategy involves a new climate initiative intended to encompass all of LU's work in this meta-area and enhance its visibility by means of profiling, making use of the entire range of subjects from science and technology to economics, social sciences and ethics. Work on the profile to enhance visibility will be completed in January 2008. The themes planned for include 'sustainable business'.

*Advanced materials research* such as laser technology, nanotechnology and their applications in electronics and photonics, proteins and green chemistry are strong fields at LU. Having MAX-lab, a national laboratory, nearby gives our researchers unique access to a powerful synchrotron light source. This has contributed to the strength of LU research in physics, chemistry and structural biology, as well as in advanced materials research in general.

*Economic, social and political systems* are complex areas stretching across large sections of research in social sciences, economics and law. Within this area, LU research is strong in a number of subjects, including organisational theory, international relations, labour law, sociology of law, innovation studies, economic demography, and social and economic geography.

*Human development, human conditions and democracy* is a multifaceted area including cultural and religious interaction, democracy, and human rights and obligations. The centre of gravity of this meta-area is to be found within the humanities, theology, law and social sciences. Strong research fields at LU include international and humanitarian law, development studies, history and ethnology. LU will strive to further strengthen its research in the humanities and social sciences.

Obviously, not all research carried out at LU can be ranged in one of the above meta-areas, but even so they provide a good picture of cross-disciplinary and leading-edge research at LU. Research within individual disciplines is a prerequisite for existing and future research at LU. Unless very good research is being undertaken within each discipline, there will be no opportunities for further development and no foundation on which to build new cooperation projects. Quality assurance of our fundamental research is performed through recurrent quality assessments.

## **6. Cross-disciplinary cooperation within LU**

It is thus an important element of LU's strategy to initiate and encourage cross-disciplinary cooperation of various kinds. This strategy is based on the fact that we are a comprehensive university with most faculties located within a coherent organisation and a small geographical area. The success of this strategy is evident, for example, from the outcome of the first round of 'Linnaeus applications' for funding of strong research environments, where LU was awarded funds for eight out of twenty

environments. Most of our Linnaeus environments are cooperation projects which have existed for some time and which can now develop further and grow stronger.

Internal cooperation takes place at the individual level, in cooperation projects and through cooperation between larger environments. One example is the physical co-location of the CREATE Health centre, which includes the Department of Immunotechnology, the Department of Electrical Measurements, the Section for Oncology, the Section for Tumour Biology and the Section for Complex Systems – representing the Faculties of Engineering, Medicine and Science.

Another example is the Centre for Languages and Literature, which comprises what used to be various small and dispersed language departments, leading to a progressive increase in cooperation on education and research. This centre also includes the newly established ‘humanist laboratory’, which has quickly assumed a key role for innovative research in the fields of culture, cognition and communication.

Yet another example is the planned Institute for Advanced Studies (working name), which will be a multi-faculty temporary meeting-place for LU researchers and visiting researchers. This institute will enable researchers to focus on various research themes and build cooperation between disciplines. The humanities, theology, law and social sciences still predominantly use a traditional working method whereby projects are mainly carried out by individual researchers or small teams. The objective of the new institute will be to strengthen cooperation among the various faculties and research teams of LU, resulting in powerful research projects capable of successfully competing for external research funds – from the European Union or from other national or external funders of research.

## **7. MAX IV and ESS**

Access to good infrastructure is important in many research fields. ‘Infrastructure’ includes everything from databases and computer networks to access to advanced scientific equipment. LU has conducted an inquiry into the coordination and utilisation of advanced instruments, which will lead to more efficient use of our government and external research funds as is already the case at the Biomedical Centre (BMC).

Two major infrastructure projects are in the pipeline. As has already been mentioned, having the national facility MAX-lab nearby gives our researchers unique access to a powerful synchrotron light source. This has furthered research in physics, chemistry and structural biology, and it has contributed to our success in advanced materials research. LU wishes to emphasise the importance of going through with the plans to expand the national laboratory with the new MAX IV synchrotron.

With MAX IV, LU will have access to unique resources in fields such as structural biology, nanotechnology, environmental science, materials research and energy research. This will reinforce links with genomic research and foster crossdisciplinary research. Researchers at LU will be key players in many of these activities, and LU will enjoy a major advantage when recruiting researchers in a series of disciplines.

The Government of Sweden is trying to ensure that the European Spallation Source (ESS) will be located in Sweden and Lund. Having a large number of international researchers spend time in Lund and cooperating with them will greatly enrich the research environment in Lund.

LU's strategy is that, as MAX IV and ESS come closer to becoming reality, we will increasingly plan research to prepare for maximum utilisation levels in as many disciplines as possible. The intention is for advanced materials research in the Øresund Region to evolve into a node within the European Institute of Innovation and Technology (EIT).

### **8. Internationalisation and globalisation**

It is important for Swedish university research to be an active international cooperation partner. For LU, this means that we aim for long-term cooperation with qualified partners across the world. We prioritise our formal cooperative relationships with other higher education institutions to create fewer but more developed and more long-term relationships. Cooperation within Universitas 21, LERU and the Øresund University will intensify. Besides our long-term cooperation with universities in Europe and North America, LU is developing cooperation with universities in East and South-East Asia, South Asia and the Middle East. As regards the latter region, the Centre for Middle Eastern Studies was inaugurated in May 2007. LU's relationships with universities and relevant institutions in developing countries will be strengthened.

Internationalisation is taking place at all levels within LU. The overall objectives are for LU to be an international environment, for international perspectives to be integrated in all education and research and in all administrative support processes, and for long-term relationships to be given priority. LU will actively strive to deepen and broaden cooperation agreements to ensure that they encompass education, research and administration. Further, internationalisation work will be followed up and subjected to quality assurance on a regular basis. Internationalisation is a strategy to attain the highest quality, not an objective in and of itself. The aim is to integrate an international dimension in all activities, not to expand programmes and courses exclusively for international students.

LU is an international university, and the education provided should reflect this. Education with an international profile will strengthen students in an increasingly internationalised market. The development of joint programmes and the future possibility to award of joint degrees is one strategy. Swedish higher education institutions must very soon be given the opportunity to award joint degrees both nationally and internationally. LU already participates in two Erasmus Mundus programmes (Environmental Sciences, Policy and Management; and Geo-Information Science and Earth Observation for Environmental Modelling and Management) and two Nordic master programmes (Gerontology; and The Religious Roots of Europe).

LU expects to have about ten joint programmes in a few years and aims to have fifteen within five years. Other examples of integrational internationalisation include LU's involvement in the Nordic Centre at Fudan University, China, and the M.Sc. (Engineering) degrees of the Faculty of Technology with a special focus on China, where students spend the autumn semester of their third year in China. LU coordinates an Erasmus Mundus External Cooperation Window on Jordan, Syria and Lebanon, and participates in two others. There is an ambition to apply to coordinate additional 'external windows' on Asia and China in the future. This represents a new phase of internationalisation work.

LU is one of the largest Swedish recipients of European Union (EU) funds. Together with Karolinska Institutet, LU is now the single largest Swedish player in EU

framework programmes, in terms of both the number of contracts and the amounts involved, and the EU is LU's second-largest external funder of research, providing around SEK 165 million in 2006.

We will continue to be active in EU research programmes and will strive to increase our participation in the EU framework programme as well as the European Research Council and the European Institute of Innovation and Technology. Our strategy includes interventions to stimulate and support research teams during the application phase, contract negotiations and later on during the project period.

When it comes to the issue of whether tuition fees should be introduced for students from outside the European Economic Area, opinions may differ on whether doing so would be good or bad in principle. Before it is possible to take a stand on this issue, however, an acceptable administrative system for the fairly small number of students that would be concerned must be presented, as must a scholarship system. LU has not yet seen any such proposals.

### **9. Innovation activities**

LU intends to be a European leader in the field of innovation activities as well. Support for individual teachers and research groups to convert research findings into innovations and changes will be reinforced. Entrepreneurship activities will be further developed. The objectives of LU's innovation-related activities will be a larger number of enterprises and patents as well as increased support during the innovation process.

In its strategy to increase innovation and the commercialisation of its research findings, LU will develop both the innovation system and research on innovation. A new organisation has been introduced for the innovation system, including three units: Innovation, Entrepreneurship and LU Development. The latter is a company, a subsidiary of LU's holding company LUAB. Its task will be to find early financing for ideas by attracting external capital and strengthening LU's involvement in the commercialisation of innovations. Three or four venture-capital companies will be established under LU Development. The first of these, in the field of biotechnology, has already been founded and will have initial capital of at least SEK 40 million.

Research and education in the field of innovation will be carried out at the CIRCLE centre. To enhance cooperation among innovation activities, research on innovation and research on research policy, these three branches have been co-located since the autumn of 2007.

### **10. Leadership, teachership and employeeship**

LU faces an extensive rejuvenation of its staff as people belonging to the large cohorts born in the 1940s retire over the next few years. Planning for this generational shift has been going on for a long time and recruitment measures have been taken. All faculties have staff plans to guide their work on skills development, skills supply and strategic recruitment.

A coherent human-resources strategy will help enhance the national and international competitiveness of LU. It will also underscore a number of needs: for open and broad recruitment using quality-enhancing methods; for continual and systematic skills development; and for gender equality. LU has been organising leadership programmes for younger teachers and researchers, both men and women, for a number of years. These programmes have a dual purpose: to facilitate recruitment to leading positions

in decision-making bodies at different levels; and to raise the level of skill in academic leadership. The leadership programme places particular emphasis on the strategic need to recruit more women to leading positions at LU. Leadership evaluation will be introduced.

In their future professional lives, the majority of LU students will be in executive positions at various levels and in various types of organisations. We will prepare our students for such tasks and give them opportunities to identify and develop their leadership skills during their time as students. One way of enhancing students' leadership skills is their participation in the management of LU and in decisions concerning their education. In 2004, the National Agency for Higher Education found LU to be Sweden's best university as regards student participation in decision-making.

LU is prepared to assist student unions and support their leaders, as well as to facilitate the full implementation of the right and obligation to monitor and develop student influence on proposals and decisions at various levels within LU. Good teachership will provide students and their representatives with role models for a type of leadership characterised by responsibility and ethical awareness. Anyone in a teaching position has a task to fulfil as a communicative leader, and teachers should see students as future leaders. Mentorship systems will be progressively developed.

We will ensure the quality of education by being able to provide teachers who have a high level of university-teaching and scientific skills as well as the ability to prepare students for professional life. A large share of teachers will have doctoral degrees. All teaching staff at LU will have undergone training in teaching and learning in higher education and will participate actively in research, internationalisation and contacts with relevant sectors of society.

Besides normal recruitment to vacancies and expanding operations, LU has started an integrated programme for broad recruitment of junior researchers. Over a period of five years, 160 positions as associate senior lecturer, research fellow and postdoctoral fellow will be announced as part of a joint programme by all LU faculties and with financial support from the quality project which the Riksdag (parliament) has decided for LU and which we hope will continue. In connection with this programme we also intend to initiate and develop a structured postdoctoral programme for the continual development of the potential resource that junior researchers constitute both within LU and in a wider societal context.

### **11. Cooperation with other higher education institutions**

LU already engages in high-quality cooperation with universities and university colleges – globally, nationally and regionally – but this cooperation can and should be further developed. LU will participate actively in the project on the future tertiary landscape organised by the Association of Swedish Higher Education.

At the *regional* level, LU intends to extend cooperation. We already cooperate with the Swedish University of Agricultural Sciences in Alnarp on research and doctoral education in the fields of plant biotechnology, ecological chemistry, food science, environmental science, energy and landscape architecture. There is scope for development in several subjects.

Cooperation with the Malmö University College should expand considerably in the longer term. At present there are cooperation agreements on subject-specific education in teacher training, on courses given by the MUC Faculty of Dentistry and, above all, on doctoral education. Jointly provided funds for cooperation projects have been announced for applications and there are plans for more.

There is scope for further development of the current cooperation projects with the Kristianstad University College and the Blekinge Institute of Technology relating to doctoral education and research. There is now an agreement with the Kristianstad University College on extensive cooperation relating to education, including the development of joint teacher training planned to start in 2010.

At the *national* level, LU cooperates in particular with the University of Gothenburg and the Chalmers University of Technology, above all in the fields of medicine, engineering and science. A joint University of Gothenburg-LU benchmarking project in the fields of administration and management has been carried out and will be further developed. Cooperation with these universities will be expanded in the context of the Interreg IV project Øresund-Kattegat-Skagerrak, in which the Universities of Oslo and Copenhagen will also participate.

There is extensive strategic cooperation in the Øresund Region under the aegis of the Øresund University. This project and its research platforms in the fields of biomedicine, IT, food science, logistics and environmental science ensure high-quality cooperation among local universities and industry in both Sweden and Denmark.

## **12. Cooperation with the various sectors of society**

LU intends to continue developing its cooperation with several sectors of society, not just industry and health-care, even though these two sectors represent an important part of our cooperation activities.

Our closeness to the university hospitals of Lund and Malmö as well as to the other hospitals in southern Sweden, including the primary-care services, entails excellent opportunities for translational research and contributes to the creation of successful research environments where basic research and health and nursing research are integrated in a natural way into the clinical environment. This meeting between the academy and the health-care services also facilitates cooperation with the Skåne Region, the organisation responsible for local health-care. It is therefore crucial to maintain and strengthen the structures and funds available today to facilitate good cooperation. The need for research with applications in municipal health-care services is great and thus constitutes an important potential for the development of innovative translational research.

LU cooperates with industry in a wide range of ways, such as guest professors, joint research projects and degree projects, but opportunities to reinforce cooperation will be exploited, not least in the framework of the Triple Helix cooperation project in the Øresund Region. The industry contacts of the Faculty of Engineering and the School of Economics and Management offer such opportunities, as does LU's advisory committee on fund-raising.

LU has also increased its cooperation with government agencies, various organisations and other associations, and it is planning to further develop existing cooperation initiatives. LU will strive to increase its cooperation on education and research with

the Ministry for Foreign Affairs and international organisations. The newly started 'Diplomatic Club' with about 80 members offers students services such as mentorship. Similar mentorship initiatives will be taken for other sectors of society. Increased contract-based education will be another path for LU to come into contact with new groups in society, such as the Social Insurance Agency and the Swedish International Development Cooperation Agency (Sida).

LU's strategy is also to develop cooperation with the cultural community in a broad sense. The Vice-Chancellor's Cultural Forum enables representatives of the cultural sector to meet LU teachers and researchers. The Public Service Academy brings together LU and SVTSyd, the subsidiary for southern Sweden of the national public-service broadcaster. The Vice-Chancellor's Forum for Politicians gives LU management opportunities to meet politicians at the regional, national and EU level. This form of cooperation will be further developed.

In addition to the above, each employee has a duty to have his or her own contacts with various parts of society.

### **13. Fundamental values and objectives**

Besides having defined objectives and strategies, it is vital for LU to have a clear and coherent basis of values to underpin its operations and activities. Our strategic plan lays down, among other things, that we should represent democratic values, tolerance, diversity and gender equality. Academic independence must be absolute – our research and education must be intellectually and morally independent of various factors of influence.

It is our conviction that higher education and research contribute to democracy, sustainable development and the liberation of humans from oppression. We want to build a university which will even better serve and influence society. Our univer