

## Bilag 5

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### Strategy of the IT University of Copenhagen 2006-2010

This document presents the strategy and result goals of the IT University of Copenhagen (ITU) for the period 2006 to 2010. It was approved by the Board of Directors at its meeting on 31 March 2006.

The strategy is based on an open process running in 2005 and involving the entire ITU organization. A first draft was discussed by the Board of Directors in June 2005 when the mission and vision were decided upon together with the five main topics of the strategy. Draft versions were discussed at the Board Meeting on 16 September 2005 and 2 December 2005. During December 2005 and January 2006, five groups of staff have worked on formulating the result goals involving all interested colleagues. The proposed result goals were presented and discussed at a staff meeting in January 2006. Based on this input, the management has worked out this final version.

#### 1 Mission and Vision

The Mission and Vision statements of the IT University are:

##### Mission

The mission of the IT University of Copenhagen is to deliver internationally leading teaching and research which enable Denmark to become exceptionally good at creating value with IT. Teaching and research in information technology include all academic activities which involve computers.

##### Vision

The IT University of Copenhagen is an outstanding example of how a small university by being innovative and globally interactive can achieve a ranking among the best in the world, both in terms of academic standards and in terms of creation of value.

For Danish versions of the Mission and Vision statements, please see Appendix 1.

An organisation is *globally interactive* if all of its key business processes are based on interaction with partners world-wide who each adds exceptional value to the process.

#### 2 Summary of Strategy

The following five strategic topics are the main areas of development for the IT University in the period 2006 to 2010:

- sustaining the innovative culture of the IT University
- the pursuit of the highest professional standards for all staff
- creating value for the Copenhagen region through teaching and research
- strengthening ITU's global interaction, especially in relation to teaching
- efficiency and cost-effectiveness

The rest of this document consists of a section for each of these five strategic topics. These sections contain a motivation and outline of the strategic direction followed by a number of result goals.

### **3 Sustaining the Innovative Culture of the IT University**

The IT University was created to be unique and innovative. From the very start, these values have characterized ITU. Now, the challenge is to sustain the innovation to ensure that ITU remains unique and innovative because, as the vision of ITU points out, the ability to innovate is essential for achieving a ranking among the best in the world.

At the heart of ITU's ability to innovate is its culture of continuous evaluation and self-improvement. The IT University has made special effort to create that culture. The main goals of the evaluations are to learn and develop. For example, courses are evaluated in an open web-based tool. Management has committed to publishing a report (visible on the Internet) after each evaluation addressing the results of the evaluation and describing planned steps to meet shortcomings.

ITU tries to adopt and use common management practices such as bringing most employees close to the production, eliminating superfluous parts of work processes and setting up frameworks that encourage decisions to be made without involving a large hierarchical management structure. It is, for example, easy for any faculty member to see how decisions about their teaching affect the overall production goals of the university. These principles must be further developed to encourage all employees to innovate their daily work, whenever they identify possible improvements.

The small size of ITU helps the university to stay innovative. Usually, small and simple go together. Simplicity is certainly a catalyst for innovation. Although ITU intends to grow, over the coming years, this must not lead to complexity that hinders continued innovation and quality development.

As part of its pursuit of staying innovative, ITU has become a self-governing university. The degrees of freedom that come with this status are important to ITU's ability to stay innovative. ITU intends to continue its current policy of developing collaborations with other universities and with private companies on a case-by-case basis. Such collaborations should be as informal as possible, so that energy is spent on the substance of the collaboration. It is important that such collaborations contribute to the ITU vision of being globally interactive.

IT is rapidly finding its way into most other disciplines, work processes and human life in general. In many cases, IT leads to fundamental changes and new insight. Therefore, it is important for ITU to build and develop relationships with other non-IT academic disciplines. ITU has already built teaching programmes that many bachelors from the arts find attractive. The IT University wants to continue this and build strong relationships with other non-IT organizations, for example in medicine and the social sciences.

In a diverse organisation like ITU, innovation and subsequent development and implementation of new ideas do not happen automatically. They need explicit support from the entire organisation and, in particular, from the management. ITU intends to establish explicit mechanisms for initiating, implementing and sustaining organisational development.

Currently, course teaching, PhD programme, employment satisfaction, student progression and management are evaluated regularly. ITU intends to take this culture further so that, by 2010, all key processes undertaken by the university are evaluated at regular intervals.

Finally, IT plays an important rôle in the continued development of the university. ITU has introduced a governance process by which new IT development projects are born and subjected to central prioritisation. During the time of this strategy, this governance process will be developed further, to ensure that all departments regularly feed value-creating projects into the process.

ITU will support its effort to become globally interactive by appropriate use of IT.

#### **4 The Pursuit of the Highest Professional Standards for all Staff**

The IT University depends on its employees to deliver excellent results. It is, therefore, crucial to attract, keep and develop excellent staff that create these results and strive for the highest professional standards. This applies both to the academic results from teaching and research and to the internal work processes needed to deliver these results. The competencies needed differ from job to job and from person to person, but all employees must contribute. Furthermore, in the case of teaching, the high professional standards of staff at ITU are measured, in part, by the professional standards of ITU graduates. Therefore, the professional standards of ITU graduates are also important. The latter will make it necessary to keep up with the alumni of ITU, which is also independently valuable.

It is difficult to measure excellence; indeed excellence also implies the ability to survive the test of time. ITU will therefore take a process-oriented approach to excellence where results are assessed and compared and the best selected. This is expected to lead to knowledge sharing and to create a forum for the important discussion of what is meant by excellence at ITU.

The competencies of ITU staff must be developed systematically with the aim of achieving the highest professional standards. Both professional and personal competencies of the staff will be developed. Furthermore, the organisation will be developed to strengthen the cooperation between all staff in all departments.

Traditionally, universities have assumed that faculty automatically develop through their research. At ITU, we want to accelerate and focus on the development of faculty in order to meet our ambitious goals both with respect to teaching and research. Therefore, ITU gives management of personnel, including researchers, high priority. All staff at ITU receive feedback and evaluation of their daily work to ensure their development and high professional standards. One part of this is regular personal development meetings (MUS). This instrument is used to ensure that all staff discuss

their personal development and career plans with their immediate manager. Regular evaluations of both workplace and working conditions are used to ensure feedback on how it is to work at ITU.

Management is developed through training and evaluation. New managers are systematically trained to supplement their management competencies. As is the case with other staff, the competencies of management are developed continuously through courses and coaching. Every second year, all managers are systematically evaluated, for example through a 360 degree evaluation made by both employees, managers at the same level and top management. Management information systems are developed to provide an overview of how ITU performs with respect to all key work processes.

All key work processes are analysed from end to end; they must be efficient and they must be regarded as sensible, both to the people who work in them and to students and other people who interact with ITU. This analysis will be made first for teaching and then for research.

ITU will continue and extend the systematic evaluation of all teaching. The present system for course evaluation will be extended to also cover project and thesis work, and the present high level of the evaluation results must be maintained. ITU will supplement this with regular evaluations ("turnusevalueringer") of its study programmes. This will be done by an external evaluator, preferably using criteria which are shared with other universities. In addition, ITU will suggest the external evaluator to use criteria which shed light on (a) the value creation of the university (b) the efficiency and cost effectiveness of the university and (c) the ability of the university to be innovative seen from the point of view of students and employers.

In research, there is a long-standing tradition for evaluation, peer review and competition, for example in connection with procedures for promotion, for allocation of external grants and for publication. These instruments have been very successful in driving research and researchers towards excellence measured by traditional academic standards. Consequently, most of these instruments focus on the development of individual researchers or a single research project. There is, however, a need for systematic development of the institution as a whole and of the research groups. This systematic development must be based on quality measures and incentives that will foster excellence on all the dimensions expected by modern research such as interaction, dissemination, research training and value creation through innovation.

Numbers of staff and students are planned to grow during the period 2006 to 2010. A significant part of the growth is going to be related to new bachelor programmes, which will be started in the period.

The IT infrastructure provided by ITU must be stable, up-to-date and secure. In particular, ITU must adhere to security standards set for Danish governmental institutions. All students and staff must have access to computers, networks and software that is comparable to is the IT infrastructure of the workplaces where ITU candidates are employed.

ITU must of course be professional in its own use of IT. In particular, ITU must continuously document and improve processes and procedures involving IT; ITU

must conduct a risk analysis and improve safety where it most needed; ITU must formulate a security policy; and ITU must standardise its platforms.

## **5 Creating Value for the Copenhagen Region through Teaching and Research**

Creation of value has a central position in both the mission and the vision of the IT University. ITU was created with special emphasis on strengthening value creation with IT in the Copenhagen region, and that remains the focus of ITU. This does not exclude value creation elsewhere, for example in the international research community, other regions in Denmark or indeed elsewhere in the world. However, the first and foremost responsibility is to create value in the Copenhagen region.

ITU creates value through its two main activities: teaching and research. As for teaching, it is ultimately the graduates of ITU who create the value, but ITU is responsible for providing education to large numbers of good students which prepares them for being able to generate value. As for research, value creation comes through various forms of interaction with public and private sector enterprises, for example through research cooperation, dissemination, innovation and participation in the public debate.

The Danish Act on Universities (Act no. 403) specifically mentions interaction (Da: samspil) as one of the responsibilities of Danish universities. The IT University has decided not to organize this separately but to integrate it into teaching and research. For example, graduates from ITU are perceived as innovative and entrepreneurial, not so much because they take separate courses on these subjects, but because of the innovative and entrepreneurial competencies that are present in most courses and projects offered by the university. To interact, it is necessary to communicate and therefore, communication is an essential element of creating value. This communication must include dialogue with external stakeholders, dissemination of new research results, identification of new research areas, contribution to the public debate on IT-related issues (in areas where ITU can add new insight and viewpoints) and ensuring that ITU's educations are known, appreciated and in line with the constantly changing demands.

ITU works closely together with the IT Incubator ("IT-væksthuset") on the 5<sup>th</sup> floor of the ITU building. It is in the interest of ITU that the IT Incubator becomes a success first and foremost because ITU and the IT Incubator share the goal of stimulating value creation in the IT sector in Denmark. The presence and visibility of the 5<sup>th</sup> Floor IT Incubator is a clear signal to all students and staff that innovation and entrepreneurship are considered important at ITU.

ITU contributes to the 5<sup>th</sup> Floor IT Incubator in two ways. First, ITU delivers teaching in IT-entrepreneurship to the IT Incubator, for ITU students and for other entrepreneurs. Second, ITU manages facilities for the IT Incubator. ITU envisages that teaching and facilities management will continue to be the two principal forms of interaction between ITU and the IT Incubator during the years 2006 to 2010.

## 5.1 Teaching

The value created by teaching is indirect via graduates who create value in the jobs they get after graduation. For that to work, the standard of ITU graduates must be high. In particular, they must be academically strong and have the personal and professional competencies that are in demand on the job market. It is important for Denmark to produce a large number of high-standard IT graduates. Quantitatively, Denmark is far behind other countries, and the IT sector is far behind other sectors in terms of university-level graduate production.

ITU graduates should be known for their knowledge and intellectual capacity; their ability to deliver quality on time; their ability to be innovative and creative; and their ability to work in teams with colleagues who have a professional background different from their own. The high standard of graduates is important because demands in the job market are rising and will continue to rise as IT as a discipline matures.

ITU continuously strives towards designing study programmes that attract large numbers of very talented students and towards offering challenging degrees which give the graduates knowledge and skills that are both durable and have a good market value. Moreover, ITU strives towards high completion rates and short completion times so the graduates start their professional careers while they are young.

In addition, ITU will explore new markets for teaching and new ways of attracting new groups of good students. Growth in teaching volume is expected to come primarily from starting new study programmes as opposed to increasing admission of students on existing programmes. Programmes that do not attract sufficient numbers of students to be financially viable may be closed down.

ITU will continue its present high output of MSc graduates and will perhaps even increase it slightly.

Furthermore, it is a central strategic goal for ITU to further Adult Education through its Open University degrees and courses. Most of the employees in IT jobs in Denmark have never completed an IT degree. At the same time, a high level of education is increasingly becoming a necessity in order to remain on the IT job market.

Finally, ITU believes that it is essential to attract more of the very best young brains to IT especially in the light of growing global competition for jobs in the high end of the value chain. Subject to approval, ITU will therefore start a bachelor programme in software development; it is going to be an élitist programme aimed at delivering a small but steady source of top-professional software specialists to Danish society. The bachelor programme will be considerably smaller than the MSc programme in terms of number of students.

After the bachelor programme in software development has been started, ITU will start other bachelor programmes that reflect other aspects of IT.

## 5.2 Research

Research creates value through two main outputs. First, there is research training (the PhD programme). Denmark is far behind other countries in its PhD production in

general and in its PhD production within IT in particular. Therefore, ITU will continue to emphasize PhD education. Second, value is created through the new knowledge and the new ideas that come out of research. ITU will pursue the utilization of new knowledge and ideas through publications, collaboration with the 5<sup>th</sup> Floor IT Incubator, patenting, licensing and spin-offs.

The research done at the IT University is expected to make a significant contribution to Denmark's ability to develop and exploit IT. To meet this expectation, it is necessary that the ITU research is excellent by international standards, and that the limited resources are managed to strive for the best possible impact. There are, however, many ways of being excellent. Contributing insight via first-rate research publications is not sufficient. Researchers at the IT University must also work on problems that are relevant for the practical application and development of IT. Therefore:

It is the goal of the IT University to do excellent research with respect to **both** its contribution *of fundamental insight and its application* to real-world problems.

The keyword is the word **and**, i.e. that all researchers strive to find research topics that are both relevant for stakeholders outside academia and make it possible to contribute with new academic insight.

Research is becoming increasingly complex, not only with respect to the background needed to participate and contribute, but also with respect to the external requirements. Today, an excellent research group is expected to provide not only first-rate publications, but also graduate highly qualified PhDs, cooperate with external partners, disseminate research, appear in the media, stimulate innovation and start up new companies. This list seems to be constantly growing. It is very hard and for most researchers impossible to cater all these needs alone. Therefore, a growing trend in modern research is to form groups which often span more than one institution. Hence, in addition to all the above, it becomes a requirement to be able to form and manage a research group. The IT University is of course part of this development, and hence, we recognize that several parameters are needed to evaluate and document our success in research:

- Publications
- External relations, cooperation and funding
- PhD programme/production
- Dissemination
- Contribution to innovation in practice, for example through start-ups

The researchers at the IT University are organized into research groups. Each group is headed by a group leader who has the responsibility of the academic development of the group and of the personal development of all group members. All groups must have visible impact in all the above-mentioned five dimensions. The publications and the PhD programme must be excellent by international standards. There must be a significant cooperation with external enterprises resulting in substantial external

funding for the group. The groups must be visible within Denmark by disseminating their results and participating in the public debate when relevant.

To fulfil the mission of making a significant contribution to Denmark's ability to develop and exploit IT, the IT University must also stimulate the creation of new innovative companies. Studies have shown that more than 30 % of the students at the IT University are seriously considering starting a new company. The overall goal of the entrepreneurial activities at the IT University is to give the students the necessary background to make these companies sustainable.

### 5.3 Communication

ITU has defined the following goals for its external communication:

- The communication must help ITU to continue to attract new, good students in the future
- The communication must help to further the exchange of knowledge with private and public organisations and the general public
- The communication must increase the knowledge about ITU's graduates.

## 6 Strengthening ITU's Global Interaction, especially in Relation to Teaching

The vision implies that ITU becomes *globally interactive*, i.e. that all of ITU's key business processes will eventually involve interaction with partners world-wide that each adds exceptional value to the process. We believe that global interaction is a key instrument for achieving a ranking among the best universities in the world.

ITU research is essentially already globally interactive. ITU researchers are well-connected internationally, they publish in internationally recognized journals and conference proceedings, ITU researchers collaborate internationally and finally, ITU has a very large number of highly qualified international applicants for its PhD programme. One aspect to observe systematically, however, is how PhDs from ITU fare in their careers.

The main globalisation challenge for ITU for the period 2006 to 2010 is to make teaching more global in both content and form. ITU should attract excellent foreign students and those students should consider ITU an inspiring and challenging university. The culture at ITU should be multicultural, and it should be one common culture as opposed to separate sub-cultures. In particular, Danish and foreign students should work closely together at ITU. Graduates from ITU should have competencies that are particularly valuable in the light of globalisation. ITU should develop exchange programmes with foreign universities, ITU should have a substantial part of its curriculum taught in English and ultimately, ITU should coordinate and share curriculum and teaching activities with foreign universities.

## 7 Efficiency and Cost-effectiveness

The IT University has a responsibility to utilize the resources we have in the most efficient and cost-effective way. This goes for our very nice building, excellent staff, first-rate students and finances. Therefore, research, education and all the work



processes associated with these must be constantly optimised, improved and analysed to ensure that society gets maximum value for the investment made in the university. Everybody, both students and staff, must be aware of this in their daily work.

ITU will strive for optimal use of resources through systematic development of best practices, knowledge sharing, quality development, continued analysis and improvement of all work processes. To do this, it is necessary to establish and use performance measures to ensure that staff, students and external partners find ITU to be efficient and cost-effective and to ensure that productivity is improved.

Starting in the fall of 2005, work processes are analysed, simplified and optimised to ensure that the key results of ITU can be delivered by the available staff and within the available budget. This must also ensure that students and staff find the revised work processes to be an improvement, and that our external partners do not experience a lower quality of results from ITU.

The primary financial goal for ITU is to create a stable budget, leaving room for unexpected costs or lack of income while still allowing ITU to initiate new activities according to the expectations of the public to the efficient use of the revenue. Investments are to be made out of the net capital, and they should only be made when they will not jeopardise the university's ability to maintain a small net capital

ITU is currently only renting five out of six floors in its new building in Ørestad. The top floor is being used by the 5<sup>th</sup> Floor IT incubator. There is extensive interaction between ITU students and the IT Incubator and its start-up IT companies. One of the reasons for this success is that ITU and the IT Incubator share the building as opposed to being located in different buildings. Since ITU intends to grow slowly but steadily during 2006 to 2010, the five floors that ITU is currently using will be sufficient until 2010. Concerning the period 2006 to 2010, it is *much* more important to ITU to attract funding for research and teaching, than it is to attract funding for additional buildings and their associated running costs.

Looking beyond 2010, however, it is essential for ITU to have secured land for expansion. Therefore, ITU must work towards the planned phase 2 of its building(s), while at the same time not being forced to expand before it has sufficient funding for the teaching and research that are to take place in that building. ITU would prefer to share the planned phase 2 of its building with the IT Incubator.

## **Appendix 1**

### **Mission**

IT-Universitetet i København har som sin mission at levere internationalt førende undervisning og forskning, som gør Danmark usædvanlig dygtig til at skabe værdi med it. Undervisning og forskning i informationsteknologi omfatter al akademisk aktivitet, der vedrører computere.

### **Vision**

IT-Universitetet i København er et fremragende eksempel på at et lille universitet gennem at være innovativt og globalt interaktivt kan opnå verdensklasse, både hvad angår fagligt niveau og hvad angår værdiskabelse.