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Strategy for the IT University of Copenhagen 2009-2011

The intended readers of this document are external and internal stake holders of the IT University, in Denmark and globally. The external stake holders include public and private enterprises, organizations and universities with whom the IT University collaborates, public at large, politicians and civil servants. The internal stake holders are students, staff, advisory panels and the board.

Section 1 states the main principles upon which the IT University is built. Section 2 lists the actions planned for the next few years organized into strategic focus areas for the period 2009-2011.

This strategy document will be accompanied by a contract ("udviklings-kontrakt") between the Chairman of the Board of the IT University and the Minister of Science, Technology and Innovation, containing decidable goals for 2009 and 2010.
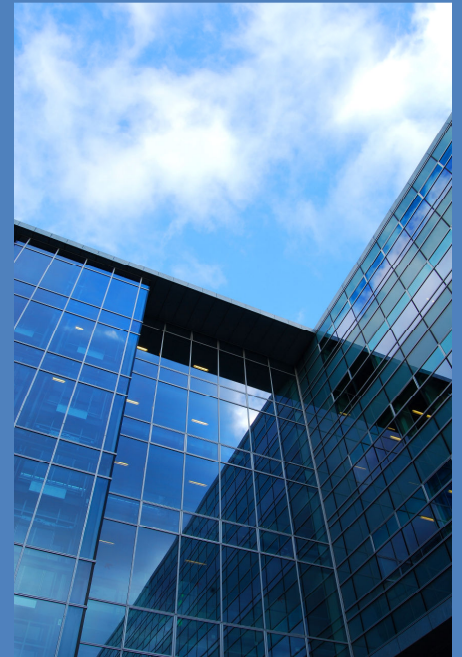
The management and board of the IT University review progress relative to the strategy document and the development contract four times a year. The result of each review is made public on the Internet. The Annual Report of the IT University also contains a report on progress relative to the strategy and the development contract; it is audited by both the University's auditor and by "Rigsrevisionen" (an independent institution under the authority of the Parliament "Folketing").

The IT University of Copenhagen is a state-funded University, dedicated to teaching and research in Information Technology. The IT University of Copenhagen is situated between DR and Copenhagen University in Ørestad, a new district in Copenhagen.

1 The principles upon which the IT University is built

1.1 Our view of what Information Technology is

The essence of Information Technology is the creation, sharing and handling of mental constructions using digital technology.

Information Technology is obviously about computers and computing, i.e. technology. But the advent of Information Technology is significantly different from the technological developments which led to the industrial revolution. The industrial revolution enhanced the muscle power of man. Information Technology is about what we can do with brain power. Information Technology has more in common with reading and writing than it has in common with the steam engine.

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The power of Information Technology comes from the fact that Information Technology allows us to handle mental constructions in ways that were not possible before.

As an academic field, Information Technology draws on

- Science, including Computer Science

- Arts, including Communication and Design

- Business, including studies of both private and public enterprises.

A fundamental idea of the IT University is therefore to attract students, faculty and external collaborators from Science, Arts and Business and have them work together. We use the following triangle to describe the study programmes at the IT University:
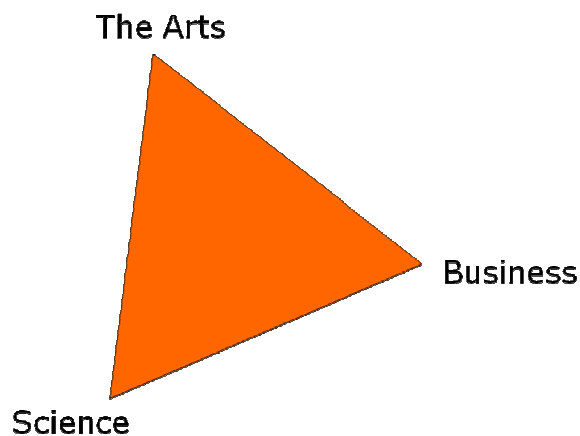
The IT University is not a place for people who want to dabble with a bit of Science, a bit of Arts and a bit of Business. The IT University is a place for people who are really good at science, arts or business AND want to work with people who approach IT from the other two corners.

1.2 Our view of university teaching

Our ideal study programme is one that satisfies these three conditions:

1. It attracts a large number of well-qualified students, with an overrepresentation of excellent students
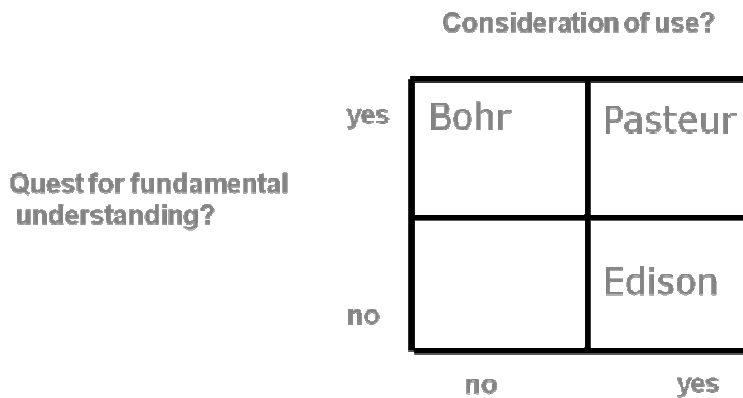2. The academic contents and the teaching are both state-of-the-art

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3. It gives the students the competences they need for the future job market

All three are taken very seriously. For example, whenever we consider starting a new study programme, we first formulate descriptions of the competences that the student would obtain by completing the study programme. We then test these competence descriptions on potential employers and prospective students and revise the competence descriptions based on the feedback. Only then do we design the curriculum and the individual modules. If the competence descriptions require academic competences which we do not currently have, we will try to get access to those competences, either through hiring of new staff or by collaborating with others, who have the competences. Once teaching has begun, we systematically collect data from students through our course evaluation system and we report to the students what we have changed as a result of last term's evaluation round.

1.3 Our view of research

Stokes[1] suggests that one can classify researchers by asking them two basic questions about what they are highly motivated by, as researchers: (a) a quest for fundamental understanding; (b) consideration of use. He presents the four possible answers in the following diagram, placing famous scientists in three of the four quadrants.

Give examples of ITU research in the Pasteur triangle. Actual people with pictures.

Consideration of use?

Quest for fundamental understanding?		yes	Bohr	Pasteur
		no		Edison
			no	yes

This two-dimensional classification of research is, we believe, much more useful than the traditional one-dimensional view, which would place Bohr at one extreme ("pure research"), Edison at the other extreme ("applied research") and Pasteur somewhere in the middle,

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[1] Donald E. Stokes: Pasteurs's Quadrant. Brookings Institution Press 1997

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indistinguishable from researchers who are neither strongly motivated by deep insight nor by consideration of use.

At the IT University of Copenhagen, *all* researchers are expected to be motivated by *both* a quest for fundamental understanding *and* consideration of use.

1.4 Mission

The IT University was created because Folketinget decided that it would be desirable to strengthen IT research and IT teaching in Denmark. IT is an enabler of value creation, both in the IT sector and in all the private and public enterprises which are not in the IT sector, but use IT as a tool for their main product.

> 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

1.5 Our view of Globalisation

Globalisation is about tasks and competences being matched up, no matter where on Earth they are. Work is carried out in globally interactive processes, where people who may be distributed all over the world work closely together, each contributing their unique competences to the outcome of the process. Globalisation of work processes has been going on for a long time in the financial sector, it is now happening with IT services, and we believe it is going to be the norm rather than the exception in most forms of service and production.

To globalize some production or service, one must be good at working with processes and one must have the necessary IT competences. IT plays a crucial role in globalisation. Globalisation is therefore a huge opportunity for the IT University. Paradoxically, one of the most effective ways in which the IT University can live up to its mission (which specifically speaks of value creation in Denmark), is to create an environment which builds up competences in global interaction.

A central theme of this strategy is to put global interaction on the curriculum and into the research agenda. Moreover, the theoretical understanding of global interaction will be accompanied by changing the practices of teaching and research at the university, so that teaching and research themselves become globally interactive.

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Our vision is that the IT University will be seen by all its stake holders, including faculty and students, as something one uses in order to gain access to a global network of exceptionally bright people that one can work closely with, even though, physically, the participants in the network are spread all over the world. To faculty, this may mean, for example, joint curriculum development with professors at universities on other continents, or joint research projects where researchers from different parts of the world with complementary expertise create a result which none of them could have achieved by themselves. For students, it means getting a network which extends beyond the fellow students and faculty at the IT University of Copenhagen and includes students and staff at universities elsewhere in the world.

We distinguish between internationalization and globalization (see box). To us, the term "globalisation" implies connections with many different geographical locations around the world. But the IT University is not primarily interested in replicating itself around the world. Rather, our goal is to become globally interactive.

The IT University wants to become really good at managing globally interactive collaborations, where the people who excel in different areas are all in different places around the world. We claim, and we use that term on purpose, because we have not yet proved it, that the work processes that take place in a university can be spread out geographically in much the same way as the business community has distributed production processes and service processes.

ITU is currently putting that claim to the test with various "pilots", cooperating across borders, time zones and not least cultures. (see box)

1.6 Vision

The vision of the IT University is:

> 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.

Notice that global interaction plays a crucial role here, namely as a means to exceptionally high standards. The way we try to be innovative is by living by our view of what IT is, our view of teaching and our view of research, as explained in Sections 1.1-1.3.

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2. Strategic focus areas

Each of the following five sections describes concrete actions planned for the coming years. Each section corresponds to one of the strategic focus areas laid down in the strategy for 2006-2011. In the final strategy revision for 2009-2011 there will only be a few (2-4) but high-priority and realistic actions in each area. In the current version some areas many more actions are listed. Each list follows the sentence "The following short-term actions have been proposed:" .The internal discussion of this revision should lead to a selection of the few top-priority short-term actions that may realistically be completed. In the final version the lists of actions will be preceded by the sentence "The following short-term actions are planned:"

2.1 Sustaining the Innovative Culture of the IT University

The principles described in Section 1 have played a key role in the results achieved so far, namely many graduates; strong staff; trendsetting study programs; healthy finances; excellent building and high quality research. The innovate power of these principles remains strong. Indeed, we believe important innovation can be achieved by consolidating the three principles. Our view of what IT is (Section 1.1) can be consolidated by developing new bachelor programmes that fill out the ITU triangle. Also, our building could be used much more actively to promote our view of what IT is, e.g., art, labs, events and physical study environment. Our view of university teaching (Section 1.2) can be consolidated by participating in the national accreditation exercise, which is based on similar views of what good education is. Our view of research (Section1.3) can be consolidated by the UNIK-initiative, which is designed with Pasteur's quadrant in mind.

[The reader is welcome to suggest more ways in which the three principles can be consolidated in practice.]

2.2 Competence development

The IT University will continue to develop the competences of all staff both in their specific areas of expertise and more generally, for example, in project management or English. The following short-term actions have been proposed:

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- refine recruitment practices,

- systematically improve pedagogical competences of faculty

- accredit study programmes

- strengthen competences needed to support global interaction and learning with IT

- develop communication skills internally among students, staff and Faculty

- strengthen leadership and management competences

2.3 Creating Value for the Copenhagen Region through Teaching and Research

The vision of the IT University clearly states that the university wants to make a visible difference – to create value in the Copenhagen region. Below are a number of proposed actions; one of them is a meta action namely to develop a way of documenting that real value is created.

The following short-term actions have been proposed:

- start a second bachelor programme in the Arts corner of the ITU triangle in September 2009

- start a third bachelor programme in the Business corner in 2010

- revise the existing M.Sc. study programmes so that they will become attractive not only to students who have a bachelor from another university but also to bachelors from the IT University

- dissemination and marketing of ITU's research and education

- double its yearly intake of PhD students from the current level of 11 to 22. A large proportion of the funding is going to come from collaboration with external partners

- research output, measured in number of research papers, will increase from the 2007 level, in step with the expansion in teaching volume

- start its Global Interaction Research Initiative (GIRI), to the extent funding for it is available.

- strengthen its relationship to external stake holders through increased stake holder communication

- develop a way to analyze and document value creation from the IT University

- start more research projects in collaboration with external partners

- create a program of short courses for IT professional

- create a consultancy service

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2.4 Strengthening the IT University's Global Interaction

Section 1 describes the globalisation vision of the IT University. At this point neither the vision nor the paths towards it are completely fixed. It is important to revise and clarify the vision based on the experience gained from taking some first steps toward it. Furthermore, the actions proposed below are useful regardless of how the vision is refined in the coming years. The following short-term actions have been proposed:

- increase global interaction in teaching, both form and contents (consider a more concrete formulation like: all students must participate in a global project/course at least once during their studies at the IT University)
- conduct pilots with global interaction in research
- make the University more accessible to students and staff coming from other cultures
- establish IT infrastructure to support global interaction both teaching and research
- pick and focus on a few global themes for research (e.g. global interaction or green IT)

2.5 Efficiency and Cost-effectiveness

In order to do all the actions listed in this strategy with the limited resources available, it is necessary to constantly improve the effiency and cost effectiveness of all work processes at the IT University. The following short-term actions have been proposed:

- clarify roles and interactions between them in the organisation
- maintain healthy finances
- improve use of IT to support the most common interactions, both interactions that are purely internal to the university and interactions between the university and external stake holders
- optimise IT infrastructure
- reduce energy consumption