

Executive summary

The University of Copenhagen, founded in 1479, is one of the oldest and largest institutions for higher education in Europe. The university is a state institution under the Ministry of Education and the Ministry of Science, Technology and Innovation. This study is about the Department of Computing at the University of Copenhagen and its business processes.

<http://www.ku.dk>

The Department of Computing, being the first of its kind in Denmark, began its operation in 1970. The official name of the department is *Datalogisk Institut*, the Danish word *datalogi* and its English counterpart *datalogy* meaning the science of data representations and data processes. Throughout the book we use the word *computing*, which is well established in Anglo-American countries, in this meaning. Frequently, the term *informatics* is used, mostly in Europe, in about the same meaning. Also, the translation *computer science* is used by others—even within the department, but because it stipulates that a specific instrument, computer, is the main object of study, we consciously avoided using it.

<http://www.diku.dk>

In the planning of the activity of a university institute, to a person interested in datalogy, it will be natural to consider the institute as a large data system, in the sense of datalogy.

—Peter Naur

The objective of the department is to be a base for research and teaching in the domain of computing, both being done at the highest international level. Our focus is mainly on the educational part of the business done at the department.

The output from the education is bachelors, masters, and doctors who can solve computational and technical problems in collaborative environments. Our core business is the education of bachelors and masters which is supposed to take three and five years, respectively. For most students who graduate from our department the desired outcome is a job in either the public or private sector. In most cases, the jobs are in one way or other related to information technology.

As regards teaching, our department is not doing well. Since 1980 the annual intake has been between 88 and 268 students, but during the years 1985–1999 the output of mas-

ters was on average 39.3 per year. The actual study time of these masters was on average 8.8 years or 3.8 years above the prescribed.

A lot of contemporary research in Denmark looks upon dropping out as a problem and seeks to identify the underlying cause. We see dropping out as natural if the education is to continue with no initial aptitude test. This book is about survivors, not dropouts. In recent reports educational institutions are advised to focus on social integration among students and teachers. We advise that people start looking at the business processes in their organization.

The need for operational changes has existed ever since our department was founded. Many of the business processes in use were designed before the advent of modern information technology. Our customers—our students—have formally in newspapers and informally in discussions demanded improvements and even the department itself came up with a plan in 1983, but little has happened. Our education rests on many structural assumptions which have to be broken before real performance improvements are possible. In particular, we have to abandon the idea of mass education. Our students have valuable differences and have different preferences when it comes to learning; they must be treated individually.

Our students want us to change and we have to meet the demands of our students. In this book we present our strategy for doing this.

Our approach is to *reengineer* our business processes—starting all over with a brand new design which encompasses a new selection of students, a fan of new teaching services, a new building and information technology; all aligned to match the learning preferences of our students. The perspective we employ in this book can be summed up with the words: *customer service*—earlier an unknown term at our university.

Market conditions will inevitably shape the future of all departments within the university; not just our department. Today, universities and university departments look upon each other as their primary competitors within higher education. This is too narrow-minded and a formula for failure. We advise universities to include upstream actors in its view of competition. We believe the winners of tomorrow will be universities who succeed in upstream integration with its primary supplier of knowledge for its educational activities: publishers. When publishers have taken over many of the existing teaching processes from the universities, the only thing left is the university brand.

Our goal is to achieve dramatic improvements in performance when it comes to the output of masters and the actual study time of masters. As for these measures of performance our target is that—after a selection process—95% of the intake leave our department with a degree and that 90% do it in the prescribed time.

The ideas in this book will not become a success until someone embarks on the final step of this project: implementation. The final decision lies with the top management; not us. We are optimistic and confident that the new university law—according to which Danish universities are run more like business enterprises—will make it possible for the top management to select a head of department who can initiate operational changes. However, we do not expect the implementation task to be easy.

The difference between winners and losers at reengineering doesn't usually lie in the quality of their respective ideas, but in what they do with them. With losers, reengineering never moves beyond the idea phase into implementation.

—Michael Hammer and
James Champy