HISTORY OF NORDIC COMPUTING

IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

> *IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.*

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

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Dedication

This book is dedicated to

the men and women who seek to preserve the legacy of the computing profession, particularly those from the Nordic countries, whose accomplishmens and dedication to computing have propelled the work of their colleagues and have enhanced the computing profession around the world.

Contents

Preface

Computing in the Nordic countries started in late 1940s mainly as an engineering activity to build computing devices to perform mathematical calculations and assist mathematicians and engineers in scientific problem solving. The early computers of the Nordic countries emerged during the 1950s and had names like BARK, BESK, DASK, SMIL, SARA, ESKO, and NUSSE. Each of them became a nucleus in institutes and centres for mathematical computations programmed and used by highly qualified professionals. However, one should not forget the punched-card machine technology at this time that had existed for several decades. In addition, we have a Nordic name, namely Frederik Rosing Bull, contributing to the fundaments of punched card technology and forming the French company Bull.

Commercial products such as FACIT EDB and SAAB D20-series computers in Sweden, the Danish GIER computer, the Nokia MIKKO computer in Finland, as well as the computers of Norsk Data in Norway followed the early computers. In many cases, however, companies and institutions did not further develop or exploit Nordic computing hardware, even though it exhibited technical advantages. Consequently, in the 1970s, US computers, primarily from IBM, flooded the Nordic market.

Nordic activities in programming, software, and in information systems methodology were, however, more farsighted and more successful. The Nordic countries can claim to host initiative takers to developing and standardising the programming language Algol, the establishment of a theoretical approach to analysis and development of information systems, as well as originators of object-oriented programming and object-oriented development. These are only three examples, and we can find many more in

theoretical computer science as well as in practical applications of computing technology.

The Nordic cooperation and exchange was intense during the 1960s, 1970s, and 1980s. The NordSAM conferences, focusing mainly on theoretical aspects, as well as the NordDATA conferences, focusing on a wide range of aspects of computing and applications of computing, drew more than 2000 delegates in annual events, rotating among the Nordic countries. During these years exchange and collaboration between the Nordic countries was remarkably intense. Much of the activities of NordSAM and NordDATA must be attributed to the compassionate work of the different data and information processing professionals and professional societies of the Nordic countries.

There is no question that computers and information technology has had a tremendous effect on the Nordic countries and societies, not only technically but also socially and culturally. The kind of education in information technology, offered in the Nordic countries, differs to a large degree from what appears in other countries, including USA. There seems to be a Nordic consensus that IT, information technology, can and should be used for the benefit of members of the society. This has led to the fact that the Nordic countries are now among the most IT-dense and intense countries in the world. Education in IT in schools and in universities not only focuses on the technical aspects of computers and programming, but also on economical, organisational, human, and social aspects as well. This is supposed to give the students a broader view of IT and the application of IT.

One cannot deal with "Nordic Computing History" without looking inside for the quite interesting "Nordic History of Educational Computing". The process of integrating computing in education on all levels in the educational system goes beyond the technical development of computers and programs. It also incorporates changes in deep traditions, changes in attitudes and policies, reorganising curriculum, and much more. We have seen that this process and the interaction between the political, the educational, and the computer world is, among other themes, were part of the conference and appear in these proceedings.

The general conference topic area includes a wide range of aspects of computing in the Nordic countries, such as programming languages, systems development, education, Nordic co-operation, and the Nordic computer industry. The historical period addressed at the conference covers the time from the early computer age until around 1985. This leads up to the birth of the public networks, but will not cover the merging of data processing and telecommunications.

The Nordic computing started with hardware such as BARK, BESK, and DASK. Why have we come into the position we are now? Could we have done better? What, in the past, did we do well and which decisions were

poor? What can we learn from the past? How should we continue in the future?

Consequently, the aim of this conference on Nordic Computing History is to be a first attempt to collect information about its past in order to document our experience and knowledge, which future generations may use in order to make wiser decisions about future endeavours in information technology in the Nordic countries.

The editors would like to stress that the current volume is not to be seen as a comprehensive textbook on Nordic Computing History. The presentations at the conference varied from personal position statements and personal memories to historically well-researched papers. Scholars in the topic in computing history dominantly wrote the latter. Furthermore, the different Nordic countries are not equally well represented in the texts of this book. In particular, the participation of Sweden and Denmark was below expectation. The editors hope this situation will improve at a second conference on the History of Nordic Computing. There is still a considerable wealth of historical knowledge about Nordic Computing in the period 1945–1985 to gather and discuss.

Trondheim, 2004 November

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