

Swimming in the Current of Academic Information

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Introduction

In November 1995, an information resources management policy and planning committee (IRM Committee) was established at the Helsinki University of Technology (HUT), consisting of a Vice-President, the Head of the Library, the Head of the University Computing Center, members from faculty, Board of Students and university administration, added with members from two external bodies. In addition, a six-member Steering Committee was established, representing Finnish industry, Finnish Technology Development Centre, Ministry of Education, and HUT.

The aim of the IRM Committee is to establish both short-term and long-term goals for an information strategy at HUT by following the guidelines of enhanced administrative information management formulated in 1988 by the Ministry of Finance in Finland. The goals are derived from the basic mission of the university to be among the top ten technical universities in Europe by the 2005. In this work the understanding of the development of information technology plays a central role.

The two most influential documents behind the work carried out in the committee are the *National Strategy for Education, Training and Research of Finland* [1] and *Europe and the Information Society: Recommendations to the European Council* [2], better known as the Bangemann Report. They form a background upon which the more practically oriented local propositions and visions are drawn.

Working practices of the committee consist of presentations given by the committee members from their respective field of expertise. In addition, a special working group was set to give a more detailed vision on issues of campus networking and access. An interim report of the IRM Committee is to be published in June 1996.

The remarks in this paper are based on the presentations and discussions during the sessions of the IRM Committee held so far, as well as on the discussion carried out in the working group on networking.

VISIONS OF THE FUTURE

The Higher Education and Information Resources Alliance has stated that success in using technology that fuses three elements: content, access and guidance. The meaning of these three elements can be further defined as follows:

- **CONTENT** - the volume, diversity and accuracy of machine-readable primary materials. This may be scholarly research, bodies of academic knowledge, student and alumni records, operational databases.

- **ACCESS** - the network through which the content is distributed, and the platforms through which users reach it. Considerations here are capacity, reliability, connectivity, ease of use, and seamless levels of technical integration.
- **GUIDANCE** - education, training, and ongoing support of all users at all levels.” [3]

CONTENT

Traditionally and by definition, the key content providers in higher education have been university libraries, scholarly research and administration. In later years though, the so-called campus-wide information systems (CWIS) have, at least to some degree, blurred the roles of these parties as information providers. Nevertheless, the future information infrastructure of the university will remain fairly easy to foresee and understand as long as the main content of academic information is based on stability, on by-products of the teaching, research or administrative life of the community, such as texts, images or bibliographic databases. But as soon as the focus shifts towards more volatile material such as live video broadcasting from lecture theaters, interactive, multimedia or large hypertext databases, both the technology and the infrastructure become significantly more difficult to comprehend. It is necessary therefore, that there are opportunities for the academic community to reflect on these changes together before they actually occur, so that the direction of development is not left to the technologically savvy.

From the Library’s point of view, the importance of being an active player in a high-tech environment cannot be overestimated. When it comes to CWIS and its future extensions, the Library can well maintain or even expand its role as a content provider. Still, and perhaps more importantly, the Library ought to strengthen its role as a coordinating and expert unit in standardization issues. Regardless of the form of academic information, the path between the user and the information ought to be as well signposted and intuitive as possible. Carefully planned use of the HTML style sheets for example, when they become implemented in - might help in organizing academic information on the WWW. Instead of widely differing hypertext presentations on the CWISs, consensus about the broad lines of design might perhaps be achieved between departments (or universities!) without them giving away too much local freedom to individual solutions both in design and content.

Institutions of higher education are big publishers of academic research. HUT is no exception in this; every year the departments and laboratories of HUT edit, print and bind up to 500 separate issues in 200 different research series. Out of a usual print run of 200 copies, about 100 may be distributed. The rest is stored at the laboratory’s own premises.

It is a well-known fact that some sizes of print runs are economically more feasible than others. Also, due to the uncertainty of demand, there have to be extra copies available. A double effect of publishing in advance is that the laboratories find themselves to be burdened with a stock of around 100 copies per issue in average, a stock that unlikely will be diminished anytime soon, given the rapid decrease of scientific value of content in the technical sciences.

Whereas commercial publishers have in-house guidelines and standards for the whole publishing process, numerous variations of procedures flourish at HUT. In fact, the only requirements HUT publications have to follow concern the design and layout of the cover sheet. For example, name authority control does not exist. Being aware of the difficulties this causes cataloguing and, consequently, information retrieval and access, the Library has tried to underline the necessity of standardization by publishing bibliographic guidelines for HTU research series. Much remains to be done though. While it is understandable that departments want to maintain a fair amount of independence in the control over their own publications, there are serious drawbacks in this situation.

In January 1996, the Library took another initiative in establishing standards and procedures for electronic serial publications. A proposal was left to the Ministry of Education for funding a project on electronic publishing of HUT research series. The proposal got funded out of the special Information Society - grant money and a project organization was established in late May 1996.

Short-term technical goals of the HUT project are to:

- define a document type definition (DTD) for series of research publications;
- implement a set of SGML text conversion and parsing tools for a number of different editing platforms;
- specify supported file formats for non-text material;
- provide hardware for centralized file storage;
- construct a number of gateways between the HUT CWIS and the SGML text base;
- establish the print-on-demand procedures for these series;

ACCESS

In Finland, HUT students are ranked among the most active users of network resources. There are several reasons for this. Apart from being technically competent, students are introduced to local computer-based services in the beginning of their first term. Besides, for some of these services such as course assignments there may be no offline alternative.

Network usage is concentrated in campus computer classes, but because it is common to have a PC and modem at home as well, dial-up lines are extremely crowded. It is estimated that, given present resources, the HUT Computing Centre could maintain up to 200 dial-up, SLIP/PPP and ISDN lines compared to today's 100. Demand is significantly higher though.

Still, rather than shortage of lines, the price structure of the local telecom operator in the Helsinki area tends to increase queuing. The flat rate of FIM 0.5 (c.2 cents) at weekends and between 5pm and 7am on weekdays invites extremely long calls. Often lines are left open just in case. An urban legend or not, the saying goes that when the flat rate prevails you have to redial an average 500 times in order to get through to HUT! Presently, there are no connection time limits. They are considered to cause more harm than good because of their blindness for example for the character of the connection. However, Internet surfing is not taken as proper use of dial-up lines. What

is interesting to notice though, is that in computer classes random surfing is practically nonexistent. If what you are doing does not seem to be related to studying and there exists a queue, you are forced to give up your seat.

No-one seems to be able to ensure 100% network connectivity twenty-four hours a day, not even commercial Internet providers. Still, quite likely the day will come when the University has to buy some amount of dial-up service from outside. At the moment, there is no additional charge on top of the local call rate. Whether it is necessary to start to collect a small time-based usage fee later on, remains to be seen. Nevertheless, it is first and foremost a policy issue. Students of higher education in Finland are not charged tuition and any attempts to levy on basic services are confronted by strong disagreement.

Although studying at HUT means that you have to know how to use computers, does it imply that you should have a computer of your own? According to the report given by the network group of the IRM Committee, it would be unwise to decide on compulsory computer ownership. Instead, new students could be informed of what kind of personal computer HUT recommends, what the minimum requirements are, etc. After all, much depends on the network services HUT provides. To give an example, as soon as support for a non-graphical interface to library databases terminates, students are bound to act accordingly. Interestingly, there are examples of nation-wide policies on this much debated question of graphical vs character-based interface. In England for example, according to Derek Law from King's College London, the Follett Implementation Group for IT recommends that electronic services should be built for a VT100-type terminal, which supports no graphical elements whatsoever. [4]

It has been argued that the idea of campus computer classes is becoming obsolete. While it is probably true that a portable laptop is more flexible than a desktop machine, it is not economically feasible yet. Similarly, while there are limits in how many workstations it is possible to maintain, taken into account the space and staff needed, some growth is still necessary, especially on the library premises.

Consequently, the HUT Library has decided to build a computer class with 36 Pentium workstations, of which some 20 will be purchased this year. To take an example of another Finnish university, the recently published IT strategy of Helsinki University recommends that there should be one workstation for every ten students by the year 2015. By comparison, at the moment the ratio at HUT is 1:50.

HUT is one of the leading universities in Finland in the area of IT teaching and research, particularly telecommunications and multimedia. Their significance has been further emphasized since 1995, when a new multimedia laboratory with three new professorships was established at the Department of IT. The same year a major planning project named "IT House" was started at HUT.

"IT House" will be a full-sized pilot of a 21st century multimedia university in Finland, which means that the project is surrounded with great expectations. The house will be made possible by a consortium of industry, commerce and the University. Not only a shell for IT Teaching and research, the "IT House" will become a learning object in itself. A prime example of this concept in Europe comes

from the field or architecture. The Queens Building on DeMontfort University's City Campus in Leicester, England, is famous for its natural ventilation, to name just one of its clever features examined, evaluated and enhanced by local students of architecture. The goal of the "IT House" on the other hand is to provide a rich learning environment for telecommunication and multimedia. Facilities of the house will include e.g. two high-capacity telecommunication networks, one ordinary and one wireless; virtual theatre for interactive multimedia presentations; a centre for distant learning, etc. According to the schedule, the house should be finished by the end of 1998.

As far as the HUT Library is concerned, the "IT House" provides still another learning opportunity. Instead of a traditional department library, the house and its habitants will be served by a prototype of an electronic library, merged together from a number of existing library units. The core collection of the library will consist of material in electronic format, and the premises themselves, strategically placed at the very centre of the building, will be equipped with multimedia capabilities. How seamlessly will the library fit into the high-tech architecture? How do present library activities change? What kind of qualifications does the librarian in charge need? By following closely the birth and transformation of a technical electronic library, the HUT Library will hopefully be able to give answers to some of these questions.

GUIDANCE

Phil Agre, from the Department of Communication at the University of California, San Diego, writes in his article, *The end of information and the future of libraries*, [5] that we tell three stories to ourselves about information. The first one reduces information to industrial material like corn or metal; the second one assumes one day everything will be digital; the third one, which Agre refers to as information professionalism, treats information as a homogenous substance. I quote Agre: "Every profession has its object: for law everything is a case, for medicine everything is a disease, and for librarianship everything is information. In each case, someone walks in the door with a problem and the professional's job is to find their object in that problem, and to talk about the problem in a way that makes it sound like a case, a disease, or information that can be compared with other cases, other diseases, or other information." [6]

There is a fundamental problem here, says Agre. By reducing everything to a common denominator, each profession is able to help everyone, but not very well. Therefore, in Agre's view, the future belongs not so much to information as we know it but to an active process of supporting collective cognition of communities. According to Agre, communities communicate via number of genres. Genres are "...stable, expectable forms of communication that are well-fitted to certain roles in the life of some particular communities." [7]

Agre's statements may sound somewhat too idealistic and non-specific to be truly helpful. Yet, when we talk about information resources management in universities, we are well aware of the diffuse nature of the topic. University is a community where its members, be they administrative units or individuals, are all active producers of information. Characteristics of information provided though, varies widely. To use Agre's example, every university has its own lawyers, doctors and librarians.

Therefore, if we would like to work together more efficiently, to guide and support each other better, we should try to build mechanisms that help us understand why we communicate the way we do.

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