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## **Network at Work: Tailoring Digital Information**

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The electronic information marketplace offers the technological university libraries new possibilities to disseminate tailor-made information products. The network environment, including both personal and professional networks and the networked information sources promotes the generation of different information packages suited for different clientele. An example is how the Internet offers a platform to present the information. A recent report of the Finnish Ministry of Trade and Industry touched the problems concerning the information provision towards the small and medium sized enterprises (SME). The report concluded that the companies still lack the knowledge of how and where to find the information required. However, the SMEs cannot by in large use the “global resources” because of the language barrier and in this respect the tailor-made front-ends and information contents are of concern. The National Strategy for Education, Training and Research (1995) by the Finnish Ministry of Education also notes the importance of promoting the national information content industry.

This paper will focus on the recent initiatives concerning the electronic information packages provided by the Finnish technological libraries as part of the information content industry. The paper will also briefly present the results of the recently conducted survey among those public and private organizations providing information services towards SMEs concerning their present ability to use digital information products, such as CD-ROMs and Internet. Furthermore, the issues dealing with the information contents of such products provided by technical university libraries will be discussed.

In an information society, knowledge is a key resource. Advances in technology which facilitate production and improve communication have an essential effect on the structure, content and methods of education and research. These two are crucial factors for the development of Finland as an information society. In September 1994, the Finnish Ministry of Education set up an Expertise Committee to prepare a national strategy for education, training and research in the information society. The strategy report was published in the spring 1995. (1)

Finland already is a very computerized country in which every fourth household is equipped with a PC. Additionally, many people take advantage of their portable computers and continue their projects and email conversations at home after normal office hours. Considering the population (slightly over five million) the Internet is quite widely used. Early in 1996 there were 82,000 daily and 254,000 weekly users. A total of 485,000 people in the age group from 15 to 74 reported that they use the Internet frequently but less than once a week. (2)

The strategy of the Finnish Ministry of Education emphasizes the lifelong learning concept where all citizens possess the basic information skills and everybody's access to networked information will be secured by libraries, both public and research

libraries. These have been very active in adopting new technologies in recent years. The "Knot at the Cable" (<http://www.kaapeli.fi>) has been e.g. an initiative by the Helsinki City Public Library to introduce the Internet to all citizens. It is known world-wide as it was among the very first public libraries to go in the Internet/WWW.

According to the strategy, the availability and competitiveness of high-quality Finnish information products serving education and research must be guaranteed. Using the new technology, information resources need to be made available for both national and international use. In this respect, the technological capacity and know-how of Finnish information services must be kept up-to-date in the future also.

The first initiatives of research libraries, supported by the The Information Society programme were at their starting point in late spring 1996. The 14 funded projects include different aspects of electronic publishing, such as digitizing material of historical or research value, modelling of electronic libraries, modelling and implementing electronic publishing environments like textbooks, serial publications, dissertations etc. and electronic document delivery. Furthermore, a distance education programme of network know-how, designed for research libraries, archives and museums will be set up and the Helsinki University of Technology (HUT) Library will participate as a partner evaluating the educational material. Additionally, HUT library will also participate in the project modelling virtual libraries together with four other Finnish university libraries (Jyväskylä, Oulu, Kuopio and the University of Art and Design in Helsinki). The aim of the project is to create order out of chaos by setting up evaluation criteria, recommendations and guidelines for the structures of virtual research libraries. Different feedback models will also be developed.

The evaluation of the information quality, accessible via the Internet, deals simultaneously with information content and technical quality issues. The usefulness of the information itself, together with the perceived accessibility, affect the experienced quality of an electronic information resource. In the network, the fitness for purpose is emphasized because both the published material and its users form a very heterogeneous group. Therefore, the profound knowledge of the patterns of scholarly communication (that might have different features according to the field of science) as well as the operating environment are essential factors for an electronic research library aiming to ensure the accessibility of appropriate electronic information material to its users. In this respect, the question of user segmentation comes into focus: different groups of clients, e.g. entrepreneurs and students, use and need different types of information.

As the information quantity exceeds the capacity of rational information dissemination and management, it will be important to find the mechanisms in parsing, focusing and tailoring the information according to the needs of the recipient. Libraries and information services also have a "filtering" role in the process of verifying the origin and accuracy of the information. Therefore, the need for methods, tools and criteria to measure information quality is evident. All named factors form the contents of the added value services that libraries themselves can produce for the Internet (or for other, commercial networks that will emerge).

The information market is a commercial one and the acquisition of information will be governed by (fee-based) user agreements. The pricing of electronic information

favours large units and is not, according to the publishers, going to be less expensive than printed material. Joint agreements in the acquisition of networked information can ensure large national economical savings and initiatives towards consortiums similar to those found e.g. in Louisiana (LOUIS) and Georgia (GALILEO) have been made in Finland as well. The coordinating body, however, may not be a university library but the Center for Scientific Computing which runs the Finnish research network FUNET. In some fields, such as physics and chemistry, the essential basic information sources are the same for all institutes active in education and research in those certain fields. A good example of existing resource sharing in the Finnish research libraries is the integrated library system, VTLS, adopted in all 20 Finnish university libraries at the beginning of the 1990's.

### **Information services for SMEs**

The information needs for Finnish small and medium sized enterprises (SMEs) have been investigated thoroughly over the last decades with a number of reports published and, e.g. at HUT library, two surveys concerning the SMEs were completed in the late 1980s (3, 4). The information need categories identified, e.g. in the recent report of the Ministry of Trade and Industry, were divided into four major groups: business, finance, personnel and taxation information. Technical information falls into the business category. The amount of information was regarded sufficient in general but the finding of information when needed was considered a problem. Especially the government authorities were criticized for their deficient information delivery. The taxation information was, curiously enough, regarded as being promptly available. (5)

There are also problems in the use of database-type information sources within the SMEs. Language barriers do exist which prohibit the understanding of the information contents without an intermediary. In this respect the prediction is interesting that those Internet service providers offering their content in multiple languages are more likely to gain consumers than those that only use the English language. (6). Furthermore, the accelerating fragmentation of information generates obstacles as well as the pricing of information.

An information product containing technical information tailored for SMEs has been a long-term objective of the information service departments at the Helsinki and Lappeenranta Universities of Technology, both of which serve a very large clientele of SMEs. It has been obvious over the years that this specific group has problems in finding technical information when they need it. Technical information is produced by universities, colleges, research institutes, private companies, the Technology Development Centre etc. In addition to the domestic literature, the technical university libraries also acquire current technical documents from all over the world. These resources could meet the SMEs' needs of information, such as support for product development, solutions for technical problems, information on standardization, names and addresses of importers or suitable partners for export etc. All this is now, however, scattered and needs to be gathered under one umbrella to be reached properly.

Initially, the joint information product was to be a CD-ROM, containing tailored information for SMEs as well as for future entrepreneurs, the students of technical colleges. Funding for such a product was, however, hard to obtain although the idea

was very welcome among the target group. The fact that the universities are funded by the Ministry of Education while the development of the SMEs is a task of the Ministry of Trade and Industry did not make things easier.

A market survey concerning a joint "technical information product" was conducted in the fall 1995. The potential clientele of such a product was carefully discussed and, as a conclusion, the target group for the survey was decided to be those organizations which serve SMEs in their information needs. A "one sheet, fax-back" questionnaire was sent to all local offices of the Technology Development Centre, Ministry of Trade and Industry, Finnish Foreign Trade Association and KERA Oy (the regional development fund), all providing consultancy services to the SMEs. In addition to this, two geographical areas were chosen to clarify the situation in public and college level libraries, municipal business consulting and private consulting enterprises. One was the Helsinki area which was chosen because it is influenced by the presence of HUT. The other one was Southeastern Finland (the Lappeenranta area) which was regarded as a good example of an area where the local university is an influential factor. The Lappeenranta University of Technology (LUT) plays an important role in the industrial development of that part of the country.

Out of the 116 questionnaires 50 were returned (43,1 %). There were two groups of organizations that were very active: 11 out of the 14 (78 %) Technology Development Centre's local offices and 10 of the 14 (71 %) public libraries returned the questionnaire.

More than half of the respondents already had an Internet connection or CD-ROM equipment and some 30 % were to acquire an Internet connection. Curiously enough the libraries preferred CD-ROMs to Internet while the Technology Development Centre favoured the Internet. It is likely that library professionals find the CD-ROM databases very convenient because of the fast retrieval capacity and structured content.

In asking about the information content, the questionnaire produced a surprise as the respondents ranked the the universities' own publications such as reports, lecture notes etc. (72%) as the most important material to be included in the product. The library collections, books, journals etc. were of importance to the second largest group (66%) of the respondents. Theses produced in the universities were expected to be of importance but against all odds, only 44% ranked them as valued material. Within information content, interest was shown also in lecture notes of different Finnish adult training organizations, publications of university personnel and college level theses. One respondent was willing to pay more than 5000 FIM per year for such an information product whereas the majority (66%) expect to get it with 1000 FIM or less.

## **Conclusions**

The individual entrepreneur has neither the time to search for information nor is he ready to pay for an occasionally used information product. There is an evident reluctance among entrepreneurs to tie any financial assets to services that are not vital to everyday business operations. From the SMEs point of view, a single place

where all the required information could be acquired would, of course, be the best solution.

The survey indicates clearly that an Internet page offering tailored information in Finnish would probably be widely used within Finland. Marketing of this information source should, however, be strongly emphasized because of the enormous supply of competing sources: the number of the Finnish Internet hosts is growing rapidly, by 105% or 86% within six months depending on the reporting organization (6).

The survey did not give a clear answer as to whether the product ought to be in a CD-ROM format or a collection of carefully designed (tailored) WWW-pages. A good number of potential customers seemed to prefer them both equally. The benefits of the Internet page are obvious in a "land of the Internauts" (7). CD-ROM, on the other hand, does not require fast telecommunication or powerful computers, a fact that would probably promote its use in public libraries and other organizations which cannot necessarily always invest in the latest technology. Furthermore, the cost of producing a CD-ROM is decreasing rapidly while telecommunication tariff policies are still a matter of change.

Adding or organizing the universities' own publications such as reports, lecture notes etc. into an information product produced by the libraries naturally requires the following of appropriate copyright laws, especially when the original is to be reproduced. In this respect, there is an interesting trial at LUT in electronic publishing. The Department of Computer Science is starting to make the students seminar papers available in the Net. At first there will be papers dealing with object oriented systems and later in the summer a collection of papers on intelligent networks. The copyright question is solved by asking every student for written permission to place his/her paper in the Net. The permission, on the other hand, is not equal to the "releasing of the copyright" which is the standard practise in the United States. The author copyright is retained according to the Finnish law, ensuring the author the right for compensation if the original work is to be resold to a third party. The copyright law is also subject to change in Finland as a part of the harmonizing process of the European Union.

The survey did give a good reason to further develop the project of producing a tailored information product for SMEs. It became obvious that "an umbrella" with technical information reachable from various sources under it would be useful, and in some cases even essential, for those organizations that serve SMEs. Thus they can promote the business operations of SMEs by supplying them fast with valuable information and by allowing them time to do their business. The survey did not, however, indicate clearly which product type, the Internet or the CD-ROM, should be prioritized. Both have benefits and both are appreciated by a number of potential customers. The new technology allows us to regard both as equally easy to produce. Therefore, we want to offer our customers both products. That would be real tailoring, wouldn't it?

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