Electronically published scientific information in technical university libraries

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Abstract

The use of electronic information resources is growing rapidly. The actual science information is electronic as a rule - practically all the journals of engineering and natural science have electronic versions and a certain number of them are available only electronically. Electronic scientific information in technical universities is the basis for research and development, degree study and professional specialty, to a certain extent. It is widely agreed by producers and purchasers of information that the use of electronic resources should be measured in a more consistent way. Librarians want to understand better how the information they buy from a variety of sources is being used; publishers want to know how the information products they disseminate are being accessed. Findigs of this study suggest that the financial opportunities of technical university libraries in the four neighboring countries - Swedish Royal Institute of Technology, Helsinki University of Technology, Tallinn University of Technology Library, and Scientific Library of Riga Technical University (henceforth referred to as KTHL, HUTL, TUTL and RTUL respectively) - to spend resources on electronic publications are very different.

Keywords: university libraries; digital libraries; electronic scholarly communication; library services; performance measurement.

1. Introduction

Libraries in the Nordic European countries (Denmark, Finland, Iceland, Norway and Sweden) began the process of digital library building in 1980s with the implementation of computerized library catalogues [1]. The main purpose of the *Nordic Council for Scientific Information and Research Libraries*

(NORDINFO), founded in 1977 (closed in 2004) was to promote Nordic cooperation within the field of scientific information and documentation, principally in connection with the research library systems.

The Nordic Electronic Research Library is a concept which is based on national developments within the research library sector in each of the five Nordic countries. The goals of the Nordic Electronic Research Library are to make scientific and technical information easily available in all the Nordic region [2].

In contrast to the situation in the Nordic countries, the development of the information system of Eastern Europe libraries is weakly included in the national program for the development of the information society. According to Virkus [3], academic libraries in the former communist countries of Baltic states have experienced a period of rapid and profound change during the last decade, in connection with the transformation in the political and economic structures, changes in territorial and administrative situations, as well as with the rapid development of information and communication technologies.

The purpose of the present poster is to analyze the essential data, details of the use of e-resources and the cost of electronic scientific information as well as the cost of the most important performance indicators related to the increasing usage and acquisition of electronic scientific information of the leading technical university libraries in Sweden, Finland, Estonia and Latvia. These university libraries are also members of the IATUL (International Association of Scientific and Technological University Libraries). The choice of the period 2004-2008 is justified by the fact that during that time the libraries underwent a substantial increase in e-services as well as in expenditures on electronic scientific information.

2. Methodology

The data used in this paper is based on the analysis of relevant literature. The details of the size, cost and usage of the collections of university libraries, based on the annual reports of these libraries (in the case of the HUTL and TUTL) as well as on the questionnaires sent to directors of libraries (in case of the KTHL and RTUL), are analyzed.

3. Findings

The numbers in Figure 1 indicate that students constitute only one part of the readership of the technical university libraries, while a considerable part of the readership (for example ca 30% in TUTL) is formed by other target groups (lecturers, scientists and other interested groups). Therefore, the role of technical university libraries is much broader, offering services to different users.

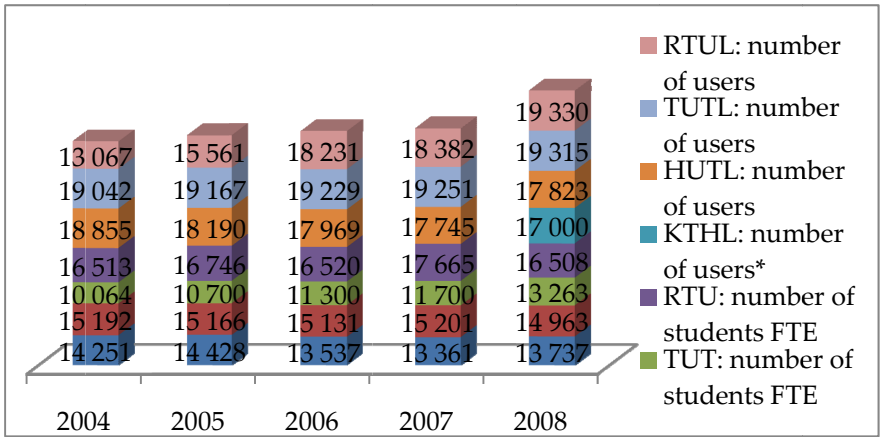

Figure 1: The number of students FTE/the number of registered users

Data given in Figure 2 shows that the number of licensed databases has grown during the last three years in all libraries. Since 2006 HUTL began to distinguish between 66 separate CSA (Cambridge Scientific Abstracs) database, hence the sudden increase in the number of databases. The number of licensed databases in RTUL was not calculated until 2006, but the number of databases is still extremely small compared to other libraries.

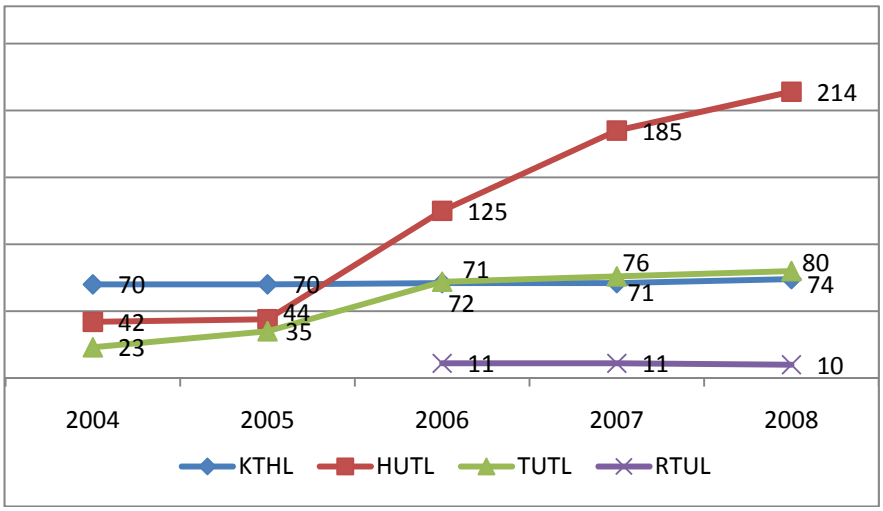

Figure 2: Electronic collection: number of licensed databases

Table 1 lists the comparison of collections on physical carriers (includes for example books and periodicals on paper, but also CDs, VHSs, DVDs etc.) and electronic collections (number of the titles of e-books and e-periodicals) of technical university libraries. These data are collected according to the standard the ISO 2798:2006 [4]. In 2004-2008, the number of collections on physical carriers was stable in all libraries. Of the considerably increased number of e-publications in HUT Library in 2006, around 240,000 are various digitized historical books from different disciplines published in the UK and US in the 15th to18th centuries and made available via different databases. Unfortunately it is not possible to compare side by side the number of electronic collections between libraries in 2004-2008. The reason for this is that RTUL does not reflect these numbers in statistics.

Table 1. Collections on physical carriers / electronic collection: the number of e-publication titles (e-books + e-periodicals)

Library	2004	2005	2006	2007	2008
KTHL	864 661/ 626 274	865 723/ 633 412	877 572/ 638 348	833 379/ 638 667	837 770/ 665 392
HUTL	237 087/ 10 999	241 104/ 13 068	240 800/ 260 228	240 875/ 311 547	234 894/ 326 151
TUTL	718 536/ 31 000	723 136/ 37 800	723 906/ 43 800	733 4867/ 55 000	723 630/ 69 474
RTUL	2 333 910/*	2 301 858/*	2 205 044/*	2 084 972/*	1 961 419/*

*Records were not considered

Table 2 compares traditional loans and downloaded electronic content units in the technical university libraries. Home lending, on-site-loans, loans through the self-rental machine and renewals (but not in-house usage) are taken into consideration in the case of traditional library loans. *Content downloaded* is defined as content unit (full-text article or abstract), that is successfully requested from a database, electronic serial or library digital collection.

Table 2. The usage of the collections: traditional library usage: loans/ electronic library usage: content units downloaded

Library	2004	2005	2006	2007	2008
KTHL	107 563/ 482 729	105 953/ 728 787	96 305/ 720 443	84 031/ 772 317	82 140/ 914 318
HUTL	181 557/ 245 046	253 264/ 255 642	271 545/ 264 895	256 447/ 291 849	241 760/ 353 627
TUTL	183 246/ 136 244	193 497/ 418 538	193 518/ 545 804	193 960/ 684 623	193 545/ 436 788
RTUL	752 243/*	756 730/*	670 780/ 95 000	630 261/ 74 213	352 680/ 229 754

*Records were not considered

Figure 2 indicates a big difference in the acquisitions costs of the libraries, due to which the libraries have very different financial means to spend on electronic publications, unfortunately to the disadvantage of TUTL and RTUL.

The proportion of the expense of e-documents in the acquisition costs is considered an important performance indicator, which is included in official statistics since 2006, but has been recorded by libraries even earlier. The spending on electronic collections – purchased access to databases and acquired licenses – has been the largest in KTHL - 69% of acquisition costs in 2004, 73% in 2005, 72% in 2006, 78% in 2007 and 89% in 2008, followed by HUTL - 80% of acquisition costs in 2004, 84% in 2005, 87% in 2006, 88% in 2007 and 90% in 2008. In TUTL, the spending on electronic collections increased from 32% of acquisition costs in 2004, to 36% in 2005, 39% in 2006, 54% in 2007 and dropped to 36% in 2008, while in RTUL the spending on electronic collections has not increased, being 15% of acquisition costs in 2004, 6% in 2005, 17% in 2006, 14% in 2007 and 13% in 2008.

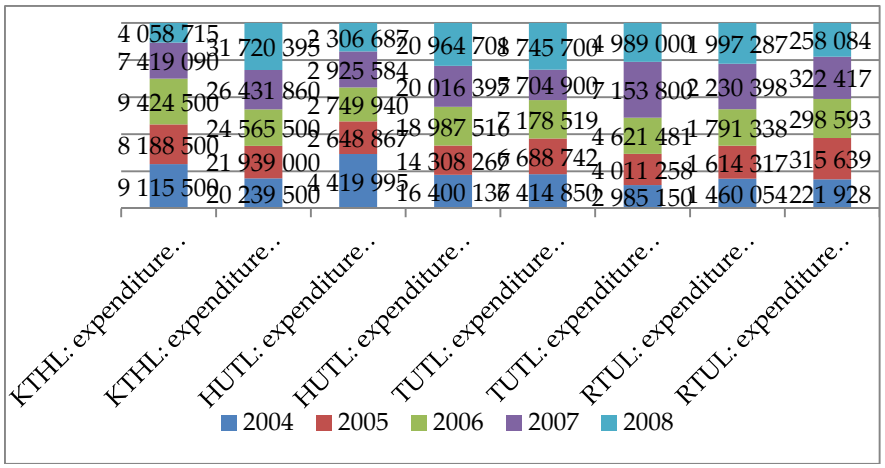

Figure 2. Acquisition costs: expenditure on print materials / expenditure on electronic materials (EEK) [1 EUR=15,6466 EEK]

The two most interested stakeholder groups in the case of university libraries are the population the library is set up to serve and the institution to which it belongs. The institution, especially if it provides funding, will see university library quality on another scale i.e., the library is good if it helps to shorten studying time, produces graduates that quickly find a job, supports research in an effective way, helps to raise the image of the institution, and if it is cost-effective overall. The last issue will often be the most important when resources are scarce [5]. To measure this, university libraries are using a performance indicator given in Table 4 – acquisition costs per student.

Table 4. Acquisition costs per student: expenditure on print materials/ expenditure on purchased access to databases, e-publications (EEK).

Library	2004	2005	2006	2007	2008
KTHL	640/1420	568/1521	696/1815	555/1978	295/2309
HUTL	29/1079	175/942	182/1255	192/1317	154/1401
TUTL	637/297	625/375	624/402	488/611	659/376
RTUL	88/13	96/57	108/18	126/18	121/16

Note: The values are calculated as follows: expenditure on print materials, expenditure on purchase of e-documents, databases / number of students.

Acquisition costs of electronic publications per student have steadily increased in KTHL and HUTL since 2006. In TUTL this cost was the highest in 2006 (402 EEK) and in 2007 (611 EEK). Acquisition costs of electronic publications per student in RTUL have been very low as well as acquisition costs of print materials per student per year.

A number of cost indicators in library work are based on the relationship between a certain statistical indicator and the operating expenditures of the library [6].

Table 5. Cost per loan and cost per contents downloaded

Library	2004	2005	2006	2007	2008
KTHL	932/ 208	919/ 134	1017/ 136	1064/ 116	1075/ 94
HUTL	376/ 279	256/ 253	260/ 267	296/ 260	330/ 226
TUTL	93/ 131	101/ 47	114/ 41	138/ 39	150/ 67
RTUL	9/*	12/*	16/ 110	26/ 218	58/ 89

*Number of content units downloaded was not recorded. The values are calculated as follows: operating expenditure/number of loans, number of contents unit downloaded

The objective of the indicator of the cost per traditional loan is to establish a relation between the number of loans and the cost of providing all services of the library, based on this can be estimated the overall efficiency of the service, especially in the university libraries, where loans are the dominant service. The objective of the indicator cost per content unit downloaded is to assess the contractual cost of an electronic resource related to the number of content units downloaded. A lower value indicates cost efficiency for electronic resources [5]**.** In addition, the cost indicators of regular loans have become considerably more expensive throughout years when compared to the usage of the electronic library.

4. Conclusions and Discussion

Since Estonia and Latvia joined the EU in May 1, 2004 – all foreign electronic publishers changed their pricing policy towards our countries. The Baltic region is no longer a region of transition and therefore many current benefits (for example discounts preferences for developing countries) have disappeared. The usage license fees for electronic resources and prices of printed books and journals continue to rise. However, expanding the choice of electronic scientific information in the Baltic countries cannot be done without additional financing at the national level.

The analysis of the most important cost indicators shows that the main cost indicator of the electronic library - the cost of the downloaded e-content unit– has become cheaper than traditional loans to the library, which affirms that the costs on the electronic library of the university library –e-resources, are well worth making due to smaller cost indicators.

Perhaps a future suggestion would be the establishment of a consortium of the libraries of universities of technology in the Nordic and Baltic countries. The need for certain specific and expensive databases would well justify that wish.

Acknowledgements

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References

[1] FENDIN, M-L. Digital libraries in the Nordic countries: with practical examples for the creation and development of 'libraries without walls' from the Nordic Africa Institute Library and other libraries within the Nordic countries. Paper presented in Conference of Electronic Publishing and Dissemination, from 1st to 2nd September in Africa, Senegal, 2004. Available at: http://www.codesria.org/Links/conferences/el_publ/fendin.pdf [December 2009].

[2] HANNESDOTTIR, S.K. The Nordic Electronic Research Library in different dimensions. *Library Consortium Management: An International Journal*. Vol. 2, no.5/6, 2001, p. 122-131.

[3] VIRKUS, S. Academic Libraries in Eastern Europe. In: Encyclopedia of Library and Information Science. London: Taylor & Francis, 2005, p. 11-21.

[4] ISO 2789:2006 *Information and documentation. International library statistics.* International Organization for Standardization.

[5] POLL, R. Performance, Processes and Costs: Managing Service Quality with the Balanced Scorecard. *Library Trends*, 2001, Vol. 49, no. 4, p. 709-717.

[6] ISO 11620:2008 *Information and documentation. Library performance indicators*. International Organization for Standardization.