



## **Chapter XVIII**

# **Problems, Their Causes and Effects in the Use of Information Systems: A Case of a Scientific Library**

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## **EXECUTIVE SUMMARY**

*Information technology (IT) has radically improved many aspects of organisational activities. Computer-based information systems (CBIS) are constantly developed more effective and efficient. Development of a new CBIS is justified by higher quality of work, more efficient work processes, and more flexible work practices. However, introduction of the new IS can produce a variety of problems. This paper describes the problems observed in the use of a library CBIS in a Finnish scientific library. The results of the study illustrate well the environment which should be understood by the designers of computer-based information systems. One important prerequisite of good (re)design is a wide understanding of the problems that may prevent effective use of a CBIS. In this study we introduce a classification based on the problems which were found in the case. The classification describes the causes and effects of the observed problems.*

## BACKGROUND

The study was carried out in a scientific library which hierarchically is a special unit of the University. The library is administrated by a chief librarian and governing board, consisting of the chief librarian, one member appointed by the rector of the University, and six members appointed by the Council of the University.

The library is organised into 11 departments. Four departments deal with administrative and acquisition related tasks. One of the departments is the central library which is in charge of the general collections. The remaining six units are faculty libraries (mathematical and natural sciences, humanities, education, medicine, law, and social sciences), which are responsible for specialised collections.

In general, the activity of a library is characterised by two different work processes. The goals of these processes are different and, in some sense, also conflicting. On the one hand, the library increases and maintains its collections. On the other hand, the library serves the customers by lending volumes from the collections. From the first point of view, the situation would be ideal when the collections are complete and all the volumes are in the shelves. For customer services, it is important that the volumes are borrowed by the customers. In an ideal situation, all volumes would be checked out. For the organisation as a whole, the most important thing is to achieve both goals in an optimal way.

The main stakeholders of the library's activity are different types of customers, publishers, brokers, bookstores, other national and international scientific libraries, Customs, and university administrative bodies. Typical customers are university researchers, teachers and students. The library's work practices are partly defined by the nationwide community of scientific libraries in Finland. Publishers, brokers, bookstores and Customs are related to the acquisition process of the library.

The library has 118 employees (see Table 1). Half of the employees hold a university degree which suggests that the organisation has a strong expert flavour. The organisation is female-dominated, and consequently the wages are low.

There are five main professional groups in the library. The largest group consists of assistant librarians. They are employed in almost all the departments, they are a little younger than the other employees, and about 40% of them are doing either their

*Table 1. Employees, collections and CBIS*

Staff	118	Collections, total	2,100,000
Professional groups		• annual accumulation	50,000
• information specialists	2%	Central CBIS	
• librarians	26%	• employees using the system	84%
• assistant librarians	35%	• working hours used on	
• library secretaries	13%	the central system	55%
• librarian clerks	11%	• working hours used on	
• others	13%	other systems	16%
Education		Collections (1997)	
• university degree	51%	• in CBIS database	32%
• lower education	49%	• manually updated	68%
Gender			
• male	32%		
• female	68%		

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