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USER STUDIES IN CONNECTION WITH THE DEVELOPMENT
OF A DECENTRALIZED LIBRARY NETWORK

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Introduction

University libraries aim to provide adequate information resources for both under-graduate students, research workers and members of the teaching staff. The needs of these groups vary from discipline to discipline, but have some common factors. The research workers and academic staff require access to a far wider range of periodicals and books than undergraduates (especially in the first years of university study). In order to meet these needs a number of library models have been developed ranging from highly centralized to decentralized collections.

The German library system of 'seminar libraries' (Fischer 1950-60 [1], Thompson, 1942 [2]) has had a marked influence on the development of Scandinavian university libraries (Grönberg, 1970 [3], Tveterås, 1963-64 [4]). This model consists of libraries decentralized both with regard to site of collection and administration of the units. In Scandinavia all the older universities have departmental or institution libraries of varying size. These libraries are, as a rule, under the direct administration of university departments. Thus library resources are provided by network systems in which there are varying degrees of communication. These networks resemble to some extent those to be found in Oxford, Cambridge and London and at some of the old established universities in the USA, for example Columbia and Harvard.

In times of economic plenty the separate units in such a network tend to expand independently, but with limited financial resources there is a greater demand for cooperation. The limited economic funds of the late 1970s have given rise to a number of surveys on the extent and cost of decentralized library collections, for example in Sweden surveys have been carried out at Uppsala University [5], Umeå University [6], Caroline Institute, Stockholm [7], Linköping University [8], and Chalmers University, Gothenburg [9], other Scandinavian countries for example Denmark [10] and in the United Kingdom at Oxford by Shaw, 1979 [11].

It is usually assumed that the costs are less for a centrally administered library collection than for dispersed groups of material, Ashworth, 1976 [12]. Organization

should, however, reflect the needs of the library users and these may well be at variance with a centralized collection. The advent of computer technology and improvement in telecommunications could be used to develop a system of coordinated decentralization in accordance with the needs of a dispersed group of users.

This paper describes a pilot study of the attitudes of library users at Chalmers University of Technology to cooperation with the main university library and to the use of computerized information networks.

Background - The place for the study

Chalmers University, which was founded in 1829, is now a Swedish state university of technology with six Schools of Engineering: architecture, chemical engineering, civil engineering, electrical and electronics engineering, engineering physics and mechanical engineering. There are, at present some 4.000 undergraduates and 600 postgraduate students. During the university's 150 years of existence some 75 departmental libraries of varying size and type have grown up. A recent survey of the libraries at Chalmers has shown that the total collections in these libraries are of the same size as that of the university main library (Fjällbrant and Malmgren, 1981 [9]). The distribution of these collections can be seen in Table 1.

Table I. Holdings of Departmental Libraries at Chalmers University

School of Engineering or Group	Collections (metres of shelving)				
	Books	Periodicals	Abstract/ Index	Hand- books	Total *
Mathematics	330	275	1	2	608
Physics	318	443	47	17	825
Mechanical engineering	672	426	37	62	1279
Chemical engineering	349	520	125	53	1056
Electrical and electronic engineering	733	766	7	36	1574
Civil engineering	408	295	16	27	830
Architecture	569	273	3	37	899
	3379	2998	236	234	7071

* Includes even special collections e.g. preprints and broschures.

The 1979/80 budget for literature acquisitions at the departmental libraries was 1.540.000 Skr which can be compared with 1.470.000 Skr for literature for the main library.

The libraries at Chalmers are, with two exceptions, situated on the main university campus (see map - Figure 1). The distance between the departmental libraries and the main library varies between 50 m and 550 m. All libraries share a central telephone service and many of the departments have direct computer communication lines to the Data Processing Centre for the Universities and Colleges in Gothenburg.

Prior to 1980 there has been no union catalogue of periodicals for the university. The book holdings of a number of libraries were, however, included in the catalogue of the main library.

The libraries at Chalmers University are at present decentralized both with regard to site, collections and organization.

Use of the libraries at Chalmers University

In a study of the use of Chalmers Library carried out by Fjällbrant in 1974 [13] it was seen that postgraduate students used the departmental libraries (44 %) far more than the main library (17 %) as a place for optional studies. Corresponding figures for undergraduates were 9 % and 6 %. During the last five years undergraduate use of the main library has increased dramatically. The 1980 survey of the libraries at Chalmers confirmed that the departmental libraries primarily served the needs of research workers and academic staff. Undergraduates, (with the exception of those engaged on theses or projects) were only granted access to 70 % of the departmental libraries. Research workers and teaching staff had keys to the libraries, whereas undergraduates could use them only during restricted opening hours.

User attitude study

The financial restraints of the late 1970s led to the consideration of rationalization of literature resources for the university as a whole. In connection with this, it was decided to study the attitudes of users to

(a) cooperation with the main library

(b) computerization in connection with available literature.

Method

It was decided to make use of the interview method rather than the questionnaire for enquiring about attitudes to cooperation and computerization. This method was chosen because of its high response rate and the ease of reaching the highly concentrated target group. Interviews concerned with attitudes to the main library cannot be carried out by

Gibraltar Manor

High voltage laboratory

School of Electrical Engineering

Center for Product Development (PUC)

School of Civil Engineering

Lecture Halls H 1 – H 10

Bus stop, line 60

Division of Mathematics

School of Mechanical Engineering and Naval Architecture

Lecture halls VA, VB, VM and VR

Chalmers Library

School of Architecture

Audio visual studio

The Swedish State Shipbuilding Experimental Tank (SSPA)

Gibraltargatan

Chalmers Student Union (restaurant, café, telephone)

Gustaf Dalén Auditorium

Sven Hultins Gata

School of Chemical Engineering

Palmstedt Auditorium

Central Administration

Tram stop, line 7

Division of Physics

Institute for Textile Research (TEFO)

Institute for Silicate Research

Aschebergsgatan city center

Division of Mathematics

Chalmers University of Technology
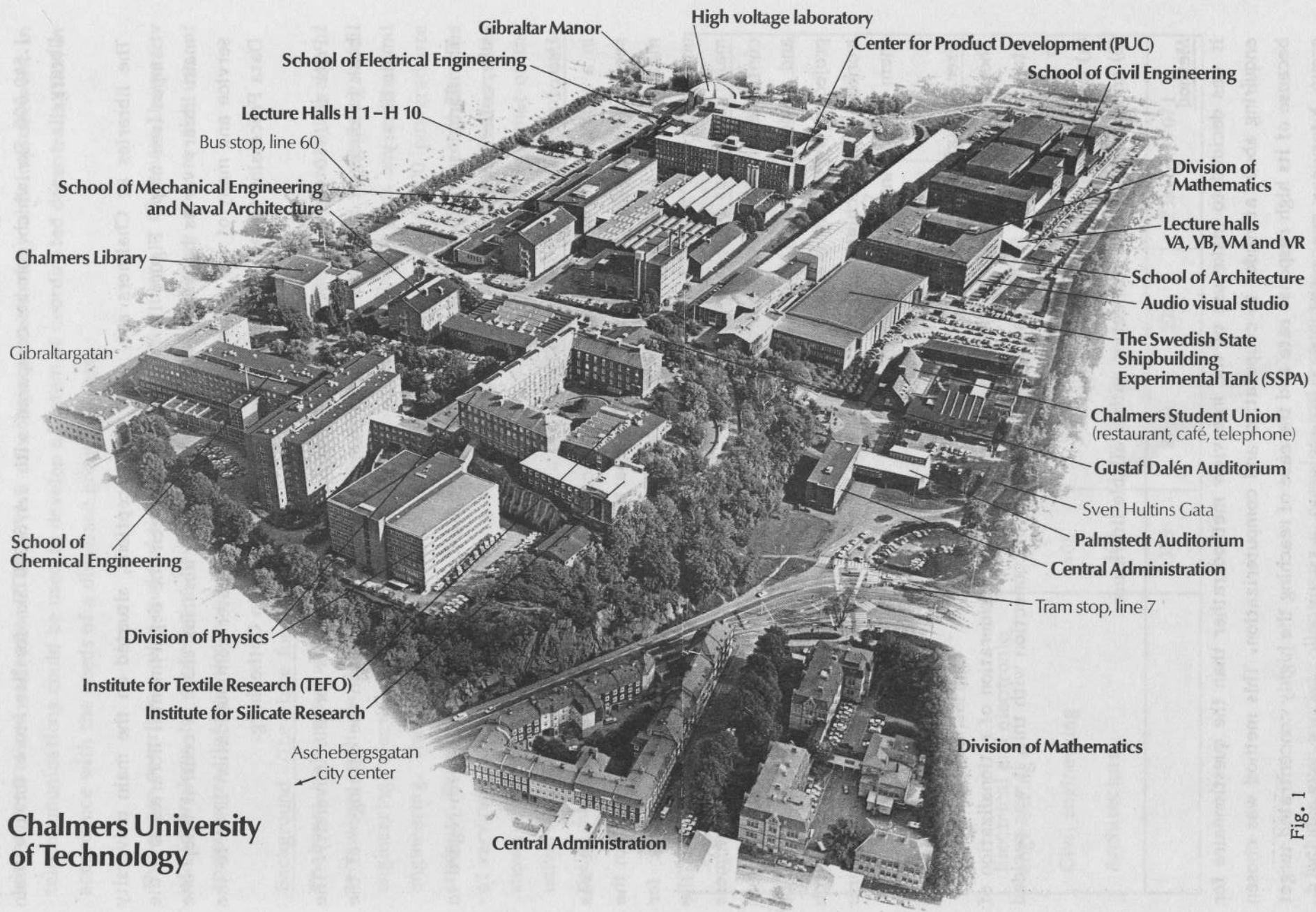
Central Administration

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Fig. 1

staff from the main library. A 'neutral' person - a postgraduate student carried out a series of interviews according to a pre-structured series of questions formulated in collaboration with staff at the main library.

It is extremely difficult to answer questions about a situation or process that the interviewee has not experienced. One example of this had been seen in a series of long-time studies of the use of Chalmers Library carried from 1974 to 1979. Users were asked about their attitude to open-stacks (prior to the opening of the library 1978), 51 % stated that this was "very desirable" or "desirable". After the opening of the library 57 % stated that open-stacks were "very good" and 33 % "good" (Total 90 %). In order to ask about attitudes to computerization, it was necessary to be able to show users the use of some relevant database. The periodical holdings of the main university library already existed in machine readable form. A small online database was constructed with the help of personnel from the Gothenburg University Data Processing Centre and Chalmers Library. This database contained the titles of the 5.500 periodicals located in the main library, plus the titles and locations of the periodicals held by the departmental libraries. This database could be searched online by means of simple commands where the user is led through necessary search stages. It was possible to carry out searches for words contained in the title. The separate search terms could even be combined. The current holdings of any of the 80 libraries could be obtained in the form of an off-line printed list from the computer centre.

Another database which contained material of potential interest to Chalmers library users was a test database for Chalmers University Reports - CHARAD. This database, had been constructed by personnel from Chalmers Library and the Medicindata Department of Gothenburg University in order to test the interactive search system 3 RIP. (Lund, 1980 [14]) The database held 300 Chalmers' reports and included the following searchable elements: words from the title, keywords, authors, Chalmers departments, acquisition number, report number, year of publication and language in which the report is written. The search terms could be combined with Boolean operators in a well-designed flexible search system.

It was decided to make use of these databases in the following way. Users would be shown how to use the base for periodicals, then allowed to search it directly online. The base for reports would be demonstrated by the investigator. (The more sophisticated 3 RIP search technique was considered too difficult to teach in a very short time).

After the display/use of the data bases, questions would be put as to attitudes and reactions to computerized handling of literature.

24 libraries (a third) of the libraries on Chalmers campus were visited. These libraries were selected according to size and in proportion to the Schools of Engineering. Two other campus libraries, those of Swedish national research institutions (The Swedish Institute for Textile Research and the Swedish Maritime Research Centre) were also visited.

Results

The results are divided according to reactions to computerization (1) the database for periodicals and (2) the report database, (3) the computerization of literature resources, (4) use of other departmental libraries and (5) cooperation with the main library.

(1) Reactions to the database for periodicals

At all of the departments questioned, people considered this database useful. (This applied to the following groups of people: academic staff, research workers and secretaries). People were, however, sceptical as to the need for an online function: it was felt that a union list would be adequate for most purposes. With two exceptions, all the users found the search technique 'very easy' or 'easy'. (The difficulties reported from two libraries were attributed to lack of experience in using terminals).

A number of suggestions were made:
It would be an advantage to include:

    (a) holdings for all libraries

    (b) holdings from other universities

    (c) details of individual articles

    (d) location codes for the holdings of the main library

It would be an advantage to have the possibility for subject searching.

Respondents were then questioned about their opinion on the need for a similar online database for books and conference proceedings etc. Response can be seen in Table II.

Table II   Attitudes to an online database for books

Are you interested in an online union catalogue for books etc?	
Very much	20 %
Much	40 %
Somewhat	20 %
Not very much	10 %
Hardly at all	10 %

It was pointed out that it was desirable that such a database could provide information about the status of a book (out on loan etc.)

All of the departments (with two exceptions) estimated that they possessed resources to register acquired books in such a database, if simple instructions were provided.

(2) Reactions to the prototype report database

Reactions after a demonstration of the report database can be seen in Table III.

Table III — Reactions to the prototype Report database for Chalmers reports *

Very useful	0 %
Useful	45 %
Not particularly useful	35 %
Not useful	10 %
Don't know	5 %

* (Note – only a limited number of the university reports are to be found in the base at present)

With regard to the search system 3 RIP, all the people who saw the demonstrations stated that the search technique was easy and flexible. There were no suggestions for alterations or improvements. The demonstrator commented that it would be necessary to provide a manual describing the use of the search system. (This has been confirmed in another experimental use of 3 RIP for subject searching in Mechen – a Swedish database covering 160 journals in the field of mechanical engineering).

All the departments estimated that they possessed resources for carrying out the registration of their reports in a database.

(3) Reactions to computerization of literature resources

The majority of the departments at Chalmers University possessed terminals and many had direct computer communication links with the Data Processing Centre for the Gothenburg Universities. Of the departments, at present without terminals, several were planning to purchase equipment.

In those cases where there were already terminals, it was stated these could be used for the computerized registration of documents at a marginal cost. Departments which did not possess terminals, were not, however, willing to buy a terminal merely for use for literature registration and retrieval. Literature search facilities were desired by one

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department at present without a terminal. Respondents were asked if they had already considered registration of literature with the help of a minicomputer or microcomputer. Five of the university departments had considered the possibilities for such registration. The Swedish Institute for Textile Research had already constructed a computerized literature data processing system using the Gothenburg Universities Data Processing Centre. This system could be used for the production of catalogue cards, but did not include subject search facilities.

Respondents were asked about their use of computerized information retrieval services. 24 of the 26 university departments and research institutions had made use of some form of computerized information retrieval service: Half had used the computerized IR services at the main library, the Swedish database IR system BYGGDOK had been used by all respondents from the Schools of Civil Engineering and Architecture, a number of departments had SDI-profiles at the Royal Institute of Technology Library, Stockholm. Other databases which had been used include MEDLINE and Ship Abstracts.

Respondents were asked if they would like some form of training in computerized information retrieval. All respondents (with one exception) were positive to some form of training. Some of the respondents stated that they thought that their needs could be met by the provision of suitable manuals.

(4) Use of other departmental libraries
Respondents were questioned as to their use of other departmental libraries. Findings are shown in Table IV.

Table IV   Use of other departmental libraries

More than once a week	0%
Once a week	0%
Once a fortnight	0%
Once a month	50%
Less than once a month	50%

Respondents were asked if they wished for increased access to the collections in other departmental libraries. At one department people thought that an increase in 'open hours' would be useful. Others thought that collections were available as much as needed. (Note use of other departmental libraries is very low).

(5) Cooperation with the main library
Users were asked what they thought about the main university library. The users had a very positive attitude to the main library. Library personnel were described as being helpful, knowledgeable and friendly. The speed at which required literature is obtained was favourably commented on.

The courses in information retrieval were popular and users appreciated the availability of international computer-retrieval systems and help in their use.

Suggestions for improvements were:

Some institutions considered that the acquisition of literature was unevenly distributed with regard to subject. They wished to play a more active part in the literature selection process.

People at some departments wished to be able to borrow periodicals again (periodicals from the last 10 years are no longer available for loan).

Increase in the number of hours open was suggested.

One department suggested that it would be useful to be able to order photocopies by telephone.

Two departments thought that the catalogue and reference area was too crowded and noisy. (This is due to a marked increase in use of the main library by undergraduates).

One department thought that the periodicals reading room was too crowded.

One department said that costs for personnel at the main library were too high.

Departments were questioned as to their interest for cooperative acquisition of literature in such a way that they could contribute 50% to the cost of a book which would be placed in the main library. The response to this question was an unequivocal "no". One department was, however, prepared to purchase expensive conference proceedings in this way.

Respondents were questioned as to their interest for a so called "Departmental library service" in the main library for advice in acquisitions, cataloguing, periodical and report registration etc.

Hardly any of the departments expressed an interest in such a service. Many assumed that this help is available from the main library. One department was interested in such a service, and two expressed the need for help in literature acquisitions. Half of the departments would like the main library to provide short courses in cataloguing and classification.

Finally respondents were asked for suggestions which would lead to a rationalization of the literature resources. Several departments suggested:

1) Construct a database for books bought at Chalmers University - in order to avoid unnecessary duplication
2) The departments ought to cooperate with the main library with regard to acquisition of literature
3) Cooperation in the acquisition of literature should lead to discounts
4) The university should create special routines and channels for buying books etc.

Suggestions made by people from one department

1) Centralize the separate departmental collections within each School of Engineering
2) Avoid duplication of periodicals
3) Reduce the costs for personnel at Chalmers library and buy more books
4) Centralize the literature to the main library.
5) Decentralize the literature to the departmental libraries.

The investigator noted a certain amount of apprehension towards the idea of lending literature to persons not directly connected with the departments in question. It was pointed out that resources were inadequate for circulation control. It was also pointed out that terminal searching did not have to necessarily take place at the departmental library, but could be carried out at the main library.

Discussion and conclusions

Fjällbrant and Malmgren, 1981 [9], had found that the departmental libraries were mainly used by the academic staff and research workers of the respective departments. Undergraduate students working on research projects were allowed to use the departmental literature collections, but only 70 % of the libraries were open to other undergraduates. In an earlier user study from 1976 Fjällbrant had found that only 9 % of the undergraduates made use of the departmental libraries as a place for optional studies, whereas the corresponding figure for postgraduates was 44 %. These findings were confirmed in this study which also brought out the lack of use, by research workers, of literature resources housed in libraries belonging to other departments. Each collection primarily serves the needs of staff and research workers within its department. This results in duplication of literature and an uneconomical use of resources.

The users interviewed were positive to the use of a computerized network, which would result in an increasing awareness of available literature on the campus. Most of the departments possessed terminals and many already had direct computer communication links with the Data Processing Centre for the Gothenburg Universities. Reactions to use of the two databases demonstrated were that such systems were easy to use. The departments stated that they possessed, in most cases, resources to input their own material - reports, books etc. into similar databases.

User attitudes to the main university library were very positive. The desire to play a more active part in literature acquisition was expressed. Experience of attempts to induce this, has, however, shown that this is a very variable factor - certain individuals are active in suggestions for various periods of time and this leads to uneven purchasing with regard to different subjects. The idea of a telephone answering service might be useful for ordering material, particularly when the university library is closed. With one

exception, users could not contemplate sharing the costs for books, if these were to be placed in the main library. (Yet this suggestion had previously been made by representatives from the School of Chemical Engineering!)

Any suggestion of increased centralization and bureaucratic control was viewed negatively - yet a so-called departmental library service is the rule at most of the larger Swedish universities. In spite of this several departments were eager to have help in economical ways of acquiring literature and over half wished for some form of training in library routines such as cataloguing and classification. Help was required but this must be achieved at no extra cost!

The conclusions that can be drawn from this study and the earlier survey by Fjällbrant and Malmgren, are that at present, the total literature resources at Chalmers University are not being used with maximum efficiency. The users have a positive attitude to computerization in connection with literature resources. At the same time, there is apprehension towards centralization and increased administrative costs. In view of these attitudes and the relatively good general availability of terminals and computerized communication links, it would be best to try to develop some form of local computerized information network containing information on the literature held by each department. This kind of network could be of major importance in the development of a coordinated decentralized library network based on the actual needs of users. Such coordinated decentralization of literature could contribute to research and teaching needs, whilst reducing costs (due to reduced duplication and unnecessary interlibrary lending). This solution appears to the coordination of literature resources seems more likely to succeed at Chalmers University, than a system with centralized processing of material. One feature required in coordinated decentralization is the possibility of providing adequate and regular training for departmental library personnel.

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