

AUTOMATED CATALOGUING AND RETROSPECTIVE CONVERSION IN THE UNIVERSITY LIBRARIES OF SPAIN

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1. Introduction

Library automation in Spain has undergone considerable growth during the 1990s, with the university library sector in particular making efforts to keep up with automation trends. Due to the installation of automated management systems in nearly all universities, the creation of university library networks, and the growing accessibility of automated bibliographic information as well as online information such as CDROM¹, it can be said that university library automation (as opposed to other library sectors) is becoming well established and is developing in a standardised fashion. It is clear that this standardisation aids interlibrary communication, although there is a considerable amount of ground still to be covered. The exchange of bibliographical information required by the Spanish Library System Law (Reglamento del Sistema Español de Bibliotecas) falls well short of what is really needed. The business of cataloguing and classifying library stock continues to take up a lot of time. If shared cataloguing existed, this time could and should be spent on improving user services. The National Library is still not the figurehead of the Spanish system. In conclusion, there is still an appreciable lack of organisation and, on many occasions, projects are started without the necessary planning.

In a European context, Spain has achieved an average level of automation and is some way behind well developed countries such as the United Kingdom, Germany or France (who have more established cooperation structures) but more highly developed than Portugal and Greece (Crespo 1993). What is certainly true is that Spain, especially in the university library sector, is following prevailing European trends: a large increase in the number of

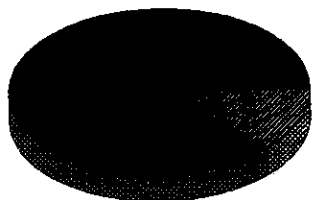
computerised libraries; an increased number of automated catalogue records; the need to start the retrospective conversion of manual catalogues; the consolidation of networks and the increasing use of technology such as CDROM; etc. It is interesting to note that the most significant advances have been made in automation system installations rather than in the development of networks. This means that growth has been more quantitative than qualitative.

To illustrate this quantitative growth we can quote the report commissioned by DG XIII of the European Community concerning library computerisation in each member country (Anabad & Socadi 1987). In Spain, 22 libraries were shown to have been automated throughout the country. Specifically, in university libraries, the report stated that 11 libraries had an information system in 1987 (purchased or designed in-house) and described their automation as being 'underway'. The truth is, however, that in 1987 computerised catalogues for public use had only been installed in two university libraries.

In the up-dated version of this report (Moscoso & Ríos 1992), 142 libraries were said to have an automated function and/or service. Of these, 15 were university libraries, all of which used automated cataloguing in integrated systems and 13 of which had online public access catalogue facilities.

Finally, in 1993, of the 40 university libraries in Spain, 35 have some sort of up-and-running computer system, all have an automated cataloguing system and 23 said that they now have OPAC. Figure 1 shows the percentage of university libraries with up-and-running automated systems.

(87,5%) Automated



(12,5%) Non-automated

Figure 1: Automation of university libraries.

2. Methodology

This study of automated cataloguing and retrospective conversion is based on data obtained from two questionnaires that were sent to all the university libraries in Spain. (The questionnaires were sent out in March 1993 and the hand-in date was set for September of the same year.) The first questionnaire was designed to obtain data regarding the different aspects of automated cataloguing and the second to obtain data concerning the retrospective conversion process of manual catalogues. Thirty-four university libraries out of a total of 40 responded, and of these, five had not yet begun the automation process. Therefore, in the majority of cases the information stated has been obtained from 29 universities. (On some occasions, direct contact was made with the relevant employees of the libraries.)

Although the questionnaires were designed to be exhaustive, some areas that might have proved very interesting have not been covered in sufficient detail due to the lack of information provided by the universities. This is mainly the case in data concerning invested resources (both economic and personnel) in the cataloguing and retrospective conversion processes. It is clear however (with the occasional exception) that Spanish university libraries rarely carry out cost evaluations of their jobs or services. Another outstanding aspect in this area is the almost total lack of studies and evaluations concerning automated catalogues (in-demand searches, user problems, system effectiveness, etc.).

3. Automated cataloguing in Spanish university libraries

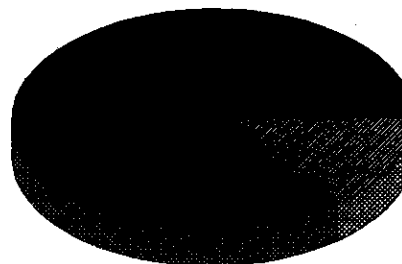
3.1. Automated book collections

Figures 2 and 3 show the percentages of automated monographs and serials in comparison with the total library stock. Although monograph automated catalogues are greater in number than periodicals, the latter has a higher percentage of records in relation to the book collection total. Monograph automated cataloguing is more extensive (29 libraries) than periodicals (only 18). This data

however only concerns those libraries that replied to our questionnaire; that is to say, in both cases — or at least in the monograph catalogues — the real number will be somewhat higher. In short, there are 11 university libraries that do not have automated periodical stock (seven of which have been automated with the DOBIS-LIBIS system). The instalment of an automated management module for serials is a difficult task, and in Spain, although there are many integrated packages that incorporate this module, quite often they are not comprehensively developed. There is, therefore, a tendency for libraries to leave the automation of serials until last. In fact, until very recently, there was no generalised putting into practice of management programmes for periodicals (Bustelo Ruesta 1992).

(85,6%) Non-automated

12.060.742

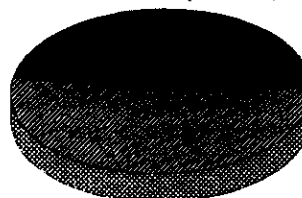


(14,4%) Automated
2.027.260

Figure 2: Monographs: book collection total (14 088 002).

(46,8%) Non-automated

98.790



(53,2%) Automated

112.310

Figure 3: Serials: book collection total (211 100).

3.2. Standardisation

In this section we are going to deal with three points: cataloguing rules, authority lists and automated cataloguing formats (MARC formats).

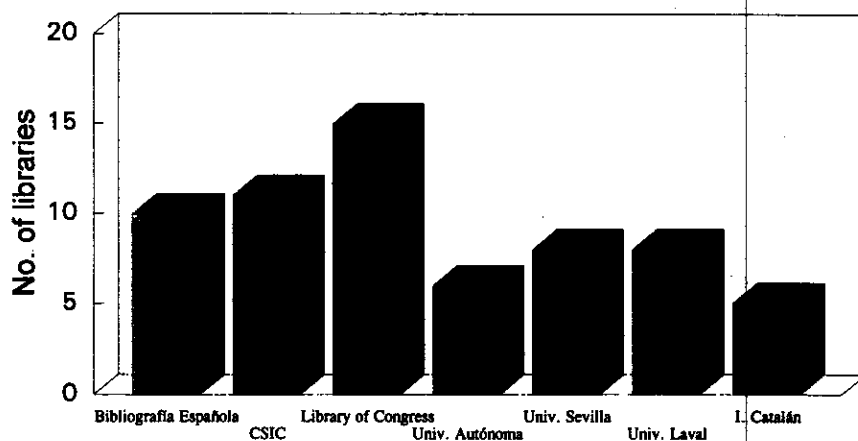


Figure 4: Name/subject authorities lists.

In regard to the first point, cataloguing rules, it is unnecessary to highlight the fact that all university libraries use international standard (ISBD), be it the AACRR, used by Catalan libraries, or *Reglas de Catalogación Españolas*, edited by the Ministry of Culture, which collects the ISBDs together for the bibliographic description.

The willingness to standardise the access points of bibliographic records has also become a generalised tendency and is revealed in the use of the various authority lists (the most frequently used lists are shown in Figure 4). What is perhaps needed is a more all-embracing instrument, without which various different lists have to be used to satisfy different needs and authority files.

The standardisation of formats, especially the use of MARC, is also widely generalised. Of the universities that replied to the questionnaire, only one (La Laguna) has a custom-built format for its automation system, although recently it decided to change to a LIBERTAS system and will therefore also use a MARC format. The versions used in Spanish university libraries are the DMARC format which belongs to the DOBIS-LIBIS system, the CATMARC format in Catalan universities (based on the UKMARC format²), the IBERMARC and the LIBERTAS UKMARC formats. None of them use UNIMARC, whose most interesting characteristic is its compatibility with any other MARC format, as an output format (although their systems are able to accept records in this format). As there is not total compatibility between all MARC formats, when exchanging records it is necessary to use some type of conversion program. Specifically, 65% of libraries say that they have to use a conversion program to import records from one MARC format to another, while 44% say that they have to use one to export records.

3.3. Cataloguing cooperation

Plans for library cooperation began to take shape in Spain in 1990. Although the Spanish Library System (Sistema Español de Bibliotecas) has looked at interlibrary cooperation, the initiative in the forming of networks and coopera-

tion plans has in greater part come from individual sources, especially from academic and research environments. Isabel Belmonte emphasises the important work carried out by university library directors. It is these people who are the real instigators of almost all Spanish university networks, and they have not always had the backing of the academic authorities or the administration (Belmonte 1993). The creation of these networks has also been aided by a greater centralisation

of library services and functions that had previously been decentralised up until the mid-80s.

University networks can be divided into two types: those created by libraries that use the same computer system; and those that use different systems. In the former appear RUEDO, VTLS and LIBERTAS, and in the latter REBIUN, Catalan University Library Network Project and, although it is not exactly a network, the Union Catalogue of Series Publications (CAPS) (Belmonte 1993; Comissionat per a Universitats i Recerca 1993; Estivill 1992).

The monthly number of catalogued records lies between 249 and 5000, depending on the size of library, state of centralisation and type of organisation under consideration. It is surprising that a high percentage of this cataloguing is still original, taking into account the amount this costs the library. *The clearest way to make cataloguing more profitable is by reducing the number of times that a particular document is catalogued* (Anglada 1989). Of course, it should be taken into account that the saving made in the original cataloguing also depends on the amount of time spent looking for and modifying those records that have been copied or gained from other sources, the subscription costs for databases in CDROM, etc. However, whatever the case may be, it is clear that the original cataloguing is always the most costly. The percentages of catalogued records using other sources (downloading or copying) are in general very low. The exceptions to this are few: both the Carlos III University in Madrid and the Pompeu Fabra University in Barcelona have a non-original cataloguing percentage of 40%; the Polytechnic of Catalonia has 21%; Gerona has 22%; Cádiz has 30%; and the University Jaume I de Castellón 18%. On the positive side it should be highlighted that seven libraries are now using the network union catalogue to which they belong, or, as in the case of LIBERTAS (which still does not have a union catalogue) they have access to the other local installations in the system in order to gain bibliographic records. It is therefore clear that the use of union catalogues is becoming greater than that of the national bibliographic services (specifically the National Library), although the latter continues to play an important part when providing catalogued

Spanish records. (According to Anglada (1989), the importance of catalogues provided by national services will be progressively reduced and substituted by catalogues provided by cooperative cataloguing or union catalogues.) This demonstrates the progressive consolidation of university networks.

The Spanish catalogues on CDROM that are used by Spanish universities are from the REBIUN network (University Library Network) and *Bibliografía española*. The REBIUN CDROM, which was launched in pilot form in 1992 and whose first disc appeared in 1993, has some 563 000 monograph records and some 27 500 periodicals. (This figure will shortly increase thanks to the incorporation, by means of a conversion programme, of DMARC format records, coming from some libraries that are connected to the network and which have the Dobis-Libis programme. Until now, these records were not able to have been included in the union catalogue.)

Bibliografía española and *BiblioFile* are the most frequently used catalogues in CDROM for current cataloguing (although their use is not yet widespread: five university libraries said they used the CDROM of *Bibliografía española* and six said they used the CDROM of *BiblioFile*).

The problems that were identified by the libraries when using these types of external sources for cataloguing purposes are as follows: the classification has to be modified when dealing with records that come from databases like OCLC or *BiblioFile*; it is necessary to translate access points; the description levels are sometimes not those wanted by the library that requests them; and finally, the selection of access points and heading systems sometimes have to be modified.

3. 4. Personnel and costs

This part of the questionnaire was designed to obtain the following information about the number of personnel employed in cataloguing tasks (permanent and temporary staff): number of daily hours spent on cataloguing; professional qualification and payment of cataloguing staff; and the number of records catalogued. It has proved difficult to come to any conclusions due to the variety of answers to these questions (the majority of libraries only answered certain questions which were not always the same); however, in general terms, we can say the following.

- In the majority of libraries, staff involved in cataloguing were permanent personnel. On isolated occasions staff were contracted specifically for cataloguing tasks or from service companies.
- The great majority of cataloguing personnel had the rank of assistant librarian (only one library — Granada — said that highly qualified librarians were involved in cataloguing tasks).
- The annual earnings of cataloguing staff (although this question was only answered by five universities) was between 2 366 000 and 2 800 000 pesetas.

- Concerning the number of catalogued records per day, the data received differed greatly and it was impossible to calculate an approximate idea of the true figure.

3. 5. Other automated functions

There are other automated library jobs and services that are based on automated catalogues. The most far reaching are OPAC (79%) and circulation (55%), which are installed in a high percentage of universities. Acquisitions, statistics, subscription control and interlibrary loan are also beginning to become widespread although as yet they are not used by the majority of libraries.

4. Catalogues and users

The final part of the automated cataloguing questionnaire provided data about user access to online catalogues. Only 16 libraries (of the 23 that said they had public automated catalogues) gave information about how many terminals were available for the users. The number of terminals ranged from 86 in the University of Barcelona to one at the University of Zaragoza. All the universities with terminals available said that the users had direct access to the catalogues and that the majority of users rarely needed special help from the librarian. Six libraries said that their users normally needed help from the librarian when searching in OPAC.

The lack of evaluation of automated catalogue usage is extensive. Only one library (the Carlos III University, Madrid) said that it carried out studies on catalogue usage. However, despite the lack of studies or formal evaluations, the universities do give some clues: for example, subject searches are the most problematic for the user — a fact that has been widely shown to be true in the field of professional literature, especially in English. In general, the universities think that the users have a high opinion of automated cataloguing (although it should be taken into account that only 12 universities answered this question, which means that the majority ignore user opinion).

It is significant that the universities pay little attention to catalogue study and performance. Cataloguing, automated or not, is no more than a technique used to create catalogues which, if not adequate for retrieving data by the users, brings into question the cataloguing resources that have been invested. Along the same lines, the small amount of written material about catalogue usage by users is indeed significant³. A conclusive example of this is that at the only professional Spanish meeting that was dedicated exclusively to OPACs (Anon 1992), almost none of the speakers (apart from sharing specific experiences) focused on this point and instead talked about technical descriptions (the performance of each system, etc.). Although it is true to say that OPACs had only just begun to be used in Spain, it seems that Spanish librarians spend more time worrying about whether our automated catalogues are powerful enough, that they have advanced

search techniques and are inter-connectable, and so forth, rather than whether they fulfil the needs and expectations of the people who use them. In short, hardly any contact was made with users before developing the systems, and hardly any after installation.

In regard to the survival of manual catalogues, only three libraries (Polytechnic of Catalonia, Pompeu Fabra and Carlos III) exclusively have automated catalogues — the last two institutions because they never had manual catalogues. From the data, we can deduce that the general trend (90%) is to maintain the manual catalogue only for non-automated stock. However, some libraries are forced to maintain a manual catalogue of the whole book stock, mainly because of a lack of terminals for the user.

5. Retrospective conversion

As we have seen in the previous pages, the majority of Spanish universities have an automated catalogue system. When a university decides to install an automated system to manage its functions (cataloguing, purchases, loans, OPACs, etc.) one of the tasks that has to be undertaken is the integration of the manual catalogues into the new system — retrospective conversion.

Retrospective conversion, which is also referred to as retroconversion or reconversion (from here onwards we shall use these terms interchangeably), is no more and no less than the conversion of existing manual bibliographic records to machine-readable records. This process is completely different from current cataloguing for two reasons: you are working with information that already exists; and this information may be improved but it is not created from nothing. What should also be taken into account, as shown by Anglada *et al.* (1992), is that on some occasions (above all in those libraries where the automation process was carried out early on) the conversion will also affect automated records in other systems, with a format that is incompatible with the present format or that has been created for a purpose other than online queries.

5. 1. The reconversion situation in Spanish university libraries

Retrospective conversion is a relatively new concept in Spain. This is hardly surprising if we take into account that the automation of Spanish libraries was undertaken somewhat later than in other more developed countries in this field. The real growth in the number of automated systems occurred in the late 80s (Moscoso & Olmeda (in press)). In

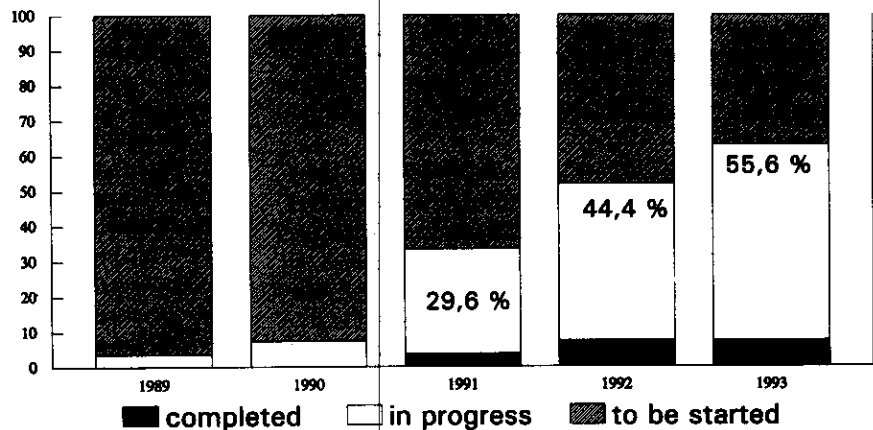


Figure 5: Evolution of retrospective conversion: 1989–1993.

the field of university libraries, 1989 marked the starting point for catalogue reconversion when the University of Barcelona Library began its reconversion programme.

Figure 5 shows the evolution of conversion in university libraries between 1989 and 1993. We can see that it was from 1991 onwards that reconversion really took off. It should be pointed out that this process has been aided by a more centralised organisation of university libraries and, therefore, the possibility of carrying out overall reconversion projects.

At the moment, and according to the results of the questionnaires (Figure 5), only two university libraries have completely converted their book stock: the University Polytechnic of Catalonia Library and the Carlos III University Library in Madrid. The latter, a newly-founded university, has had an automated system from the start and only had to reconvert a small part of its book stock that did not originate from new acquisitions. The Pompeu Fabra University Library did not have to carry out a reconversion for the same reason. Fifteen libraries are currently under-

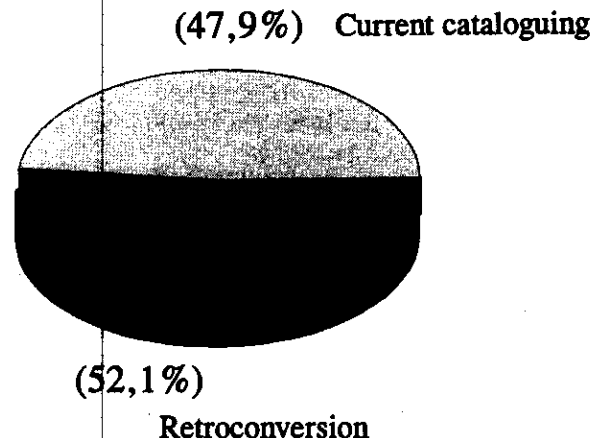


Figure 6: Automated book collection: monographs.

going reconversion (53.5%) and 10 have not yet begun (35.7%).

By comparing automated records that come from current cataloguing and conversion (Figure 6) we can see that, when dealing with monographs, 52.1% of the records have been generated by the reconversion. The converted stock of serials is 16%.

Although a significant evolution can be detected, there is still a long way yet to go. The growth of converted records has not been as speedy as had been hoped. There are many reasons for this, though perhaps the fundamental reason is that the libraries often have to carry out their reconversion projects with only an ordinary budget (33.3% of libraries) or a fraction of the same (26.7%), with only 40% of libraries sporadically having a special budget to finance their reconversions.

Reconversion has the reputation, and rightly so, of being one of the most time- and money-consuming tasks in a library. The number of documents involved in a retrospective conversion is much greater than that of current cataloguing. This means that specific budgets, special personnel and a particular organisation are needed in order to undertake the project. Should these means be unavailable then the project becomes delayed, sometimes interminably.

One very important point in any reconversion project is to obtain the economic support of superior institutions — no easy task in these times. Along these lines it is worth mentioning a cooperative project of retrospective conversion that five Andalusian universities are planning, with financial support being provided by the Junta de Andalusia (Celestino Angulo & Navarro Baeza 1992).

5.2. Preliminary reconversion project analysis

It is significant that, according to the submitted data, only 23.5% of university libraries have carried out an exhaustive analysis of card catalogues. Such an analysis would help to determine correct reconversion methods and estimate costs. It would also facilitate getting to know the problems that arise while a project is in progress and to anticipate their solutions. Before embarking on a reconversion it is essential to have a clear idea of the material under consideration, its size and its characteristics. The conversion of the catalogue should be tailor-made to the size of the job and the needs of the library.

Regarding stock to be converted, analysis of the questionnaires shows that 87% of libraries which are currently reconverting are proposing to convert their whole book stock. This complies with the recommendations of the Council of Europe (1989) which advises against partial retrospective conversion, thereby avoiding the risk of dividing the catalogue into separated sequences or excluding some of the advantages that automation can offer. The question is not what part of the collection is to be selected for conversion but rather to evaluate the order of priorities in which the conversion is to be carried out.

5.3. Order of priorities and catalogues that were used for reconversion

Owing to the high costs of carrying out a retrospective conversion, few libraries can carry out a complete conversion all at once. It has not been possible to obtain a clear and objective criterion to establish the order of priorities that Spanish university libraries follow when carrying out their reconversion projects. From an analysis of the data it follows that, in general, the majority of libraries (35%) first select certain university faculties and, within these faculties, convert records as they circulate. Twenty per cent convert documents from the reference section first and 13% have chosen a chronological criteria.

The questionnaires show that the majority of reconverted materials are monographs with only a small number being serials. It should be mentioned, as can be seen in Figure 7, that the number of automated records of serials is proportionally greater than monographs. This would however be impossible if no reconversion process had been carried out. We can therefore assume that the libraries have not considered the process of serials automation as retrospective conversion when it has taken place in the library itself.

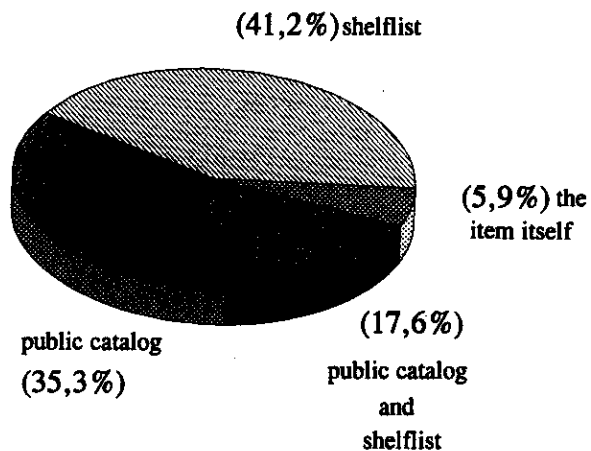


Figure 7: Conversion carried out by means of...

As can be seen in Figure 7, the catalogues used to carry out the reconversion are the shelflist and public catalogue. There is one isolated case when the document itself is used and only on three occasions have the shelflist and public catalogue been used together. Although the majority of studies that have been carried out concerning retrospective conversion advise that the shelflist be used as it aids the evolution of the project, this is not always possible (Baber 1984; Beaumont & Cox 1989). In Spain, owing to earlier cataloguing practices, the public catalogue has more bibliographic data than the shelflist. The libraries have to use the public catalogue even though it constitutes extra work in the reconversion process.

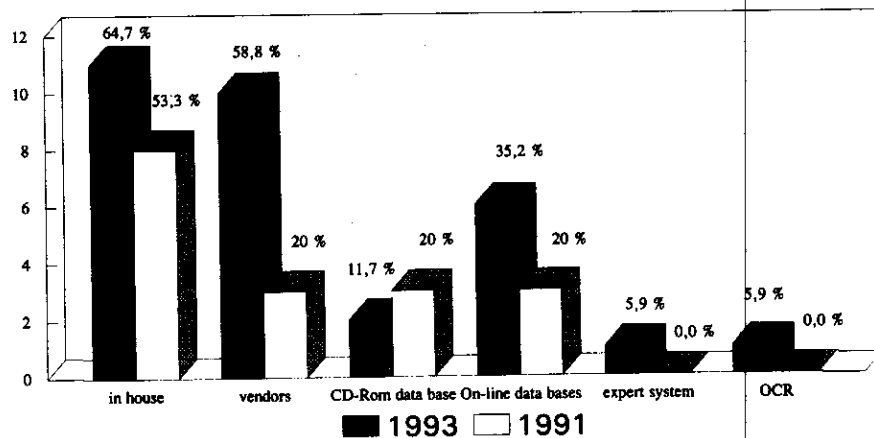


Figure 8: Reconversion methods: 1991-1993.

5.4. Methods

The trend in Spanish university libraries is to use a combination of different conversion methods: in-house keying of data by library staff, downloading of databases — mainly online — and using a bureau service (vendors).

As García Melero and Fernández Roca (1987) show, there is not a universally valid solution to carrying out a retrospective conversion. The conversion depends on a multitude of variables of which we can highlight the following: the type of library; the type of documents that make up the collection; the total volume of book stock; the quality and reliability of bibliographic records; and the human and economic resources of the library concerned. These variables will dictate how the project is carried out, the catalogues to be used, the method or methods to be employed, the proposed budget, etc.

Each method has its advantages and disadvantages and each of these presents different options when it comes to organising the job and the resources.

According to Figure 8, most reconversion is carried out in-house, meaning that the library itself does the keying in (using library or contracted personnel), followed by vendors. If we compare this information with the LIB 2 update, we can see that the vendor method has grown rapidly, mainly due to the development of this type of company which was practically non-existent a few years ago.

If we compare Figures 8 and 9 (the latter showing the number of records for each method) we can see that although in-house is the most used method, it is the vendors that generate the largest number of converted records. Along these lines, it should be said that there are a large number of converted records (21.4%) whose conversion method we do not know. This is due partly to the

fact that the libraries have not yet processed their data and partly because they have not carried out a thorough follow-up of the reconversion processes. On many occasions, project dossiers are not kept; such dossiers would be of great use for future reconversions in the library itself as well as for other libraries undertaking the same project.

5.5. Analysis of the different methods

In this section we are going to examine the various methods that are in use and the advantages/disadvantages that the libraries have pointed out. In the questionnaire, the university libraries were asked to score the different methods and their associated problems on a scale of 1 (never) to 5 (often).

5.5.1. The hiring of vendors. This is one of the most popular methods employed in university libraries and is used to convert the greatest number of records. The companies that are hired are mainly Spanish and are distributed as shown in Table 1.

Table 1: Companies hired to convert records.

Name of company	No. of libraries
BARATZ, Teledocumentation Services	2
HELICON S.A. (Spain)	1
ICSA (Spain)	1
META (Spain)	1
OCLC (USA)	1
PROCESO DE DATOS A-2 (Spain)	2
S.I.C., Central Information Services (Spain)	2
SAZTEC (UK)	2

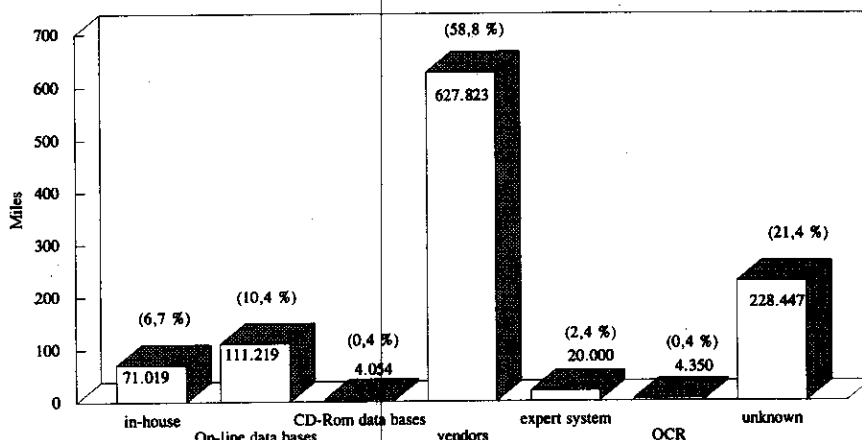


Figure 9: Number of records for each method.

All the libraries agree that the main advantages of this method are: it does not impede the everyday running of the library; it is quick; and the price is fixed from the beginning of the project. All the libraries that have used this method have been happy with the quality of the converted records. As far as the negative points are concerned, the university libraries pointed out the non-existence of duplicate control in the database and the lack of authority control exercised by the vendors.

Ninety per cent of libraries that used this method have drawn up specifications of conditions when dealing with vendors. These include: deadlines, structure of the database, character sets, the characteristics of the stock to be converted, level of description of the bibliographic records and the computer format of the records (Figure 10).

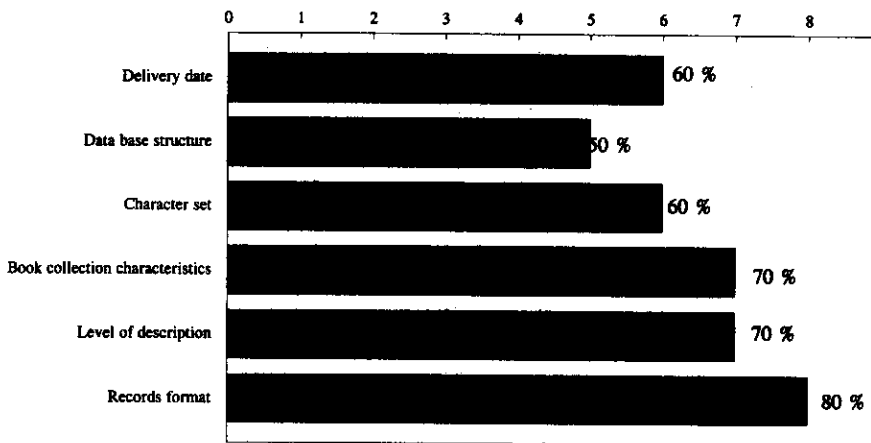


Figure 10: Specification of conditions.

In all cases, the vendors carried out the keying in of the records. In 54.5% of cases, they also carried out a final quality control and in 11.7% of cases they prepared the files to be reconverted. The libraries carried out authority control and the assignation or revision of subject and classification headings.

5. 5. 2. Databases.

5. 5. 2. 1. Online databases. As can be seen in Figure 8, 35.2% of the libraries use this particular method which has generated 10.4% of converted records.

The most widespread databases are OCLC and SLS (Information Systems Limited), followed by BiblioFile. As was shown in Section 3.3, SLS has an Inter-Libertas Access Service that allows records to be transferred from the central database or from any library that is equipped with the same system.

5. 5. 2. 2. CDROM databases. The most widespread of these are OCLC, BiblioFile and Bibliografía española.

The absence of Spanish bibliographic databases makes the use of foreign databases obligatory. Although 80% of the university libraries said that they found around 80% of

searches were carried out using these systems, they also found a number of common problems: differing bibliographic description levels of the records; and the problem created by the different cataloguing rules in use, above all when establishing access points and authority form. The libraries have to translate subject and systematic classification headings, thereby raising the cost of each registered record; however, 70% of the libraries did not consider this to be expensive. It should also be said that the use of this method necessitates the employment or contracting of a person specifically to carry out the search and capture of records.

It is hoped that in the not-too-distant future the recent release of the *Bibliografía española* on CDROM, the link-ups with the National Library and the growth of Spanish university databases will favour the use of this method which at present is chiefly used in the UK and USA.

5. 5. 3. In-house conversion.

Eleven universities have used this method, the majority of which have permanent and specifically contracted personnel for the project. Carrying out the conversion in-house with permanent personnel carries the advantage of working with people who are trained for the job-in-hand. If workers are

contracted, library staff are more able to contribute to the project with their experience and knowledge.

In comparison with previously mentioned methods, in-house conversion does not cause problems of quality in the database or different levels of description. Authority and duplicate control is also made easier. However, it does have certain problems: libraries do not usually have sufficient staff available to carry out reconversion work without disrupting day-to-day library business. This means that they have to contract temporary staff to carry out these tasks, thereby making it more expensive and time-consuming. As can be seen in Figures 8 and 9, although this method is one of the most widespread, proportionally it generates the least number of converted records.

5. 5. 4. Retrospective conversion using artificial intelligence (LAURA Program). Both the Complutense University in Madrid and more recently the Scientific Research Council (CSIC) use a method based on artificial intelligence. Due to its newness and results obtained we are going to look at this procedure in a methodical fashion.

The software for this conversion tool has been developed by a research team from the Artificial Intelligence Laboratory in the Logic Department of the Complutense University, Madrid.