
Polish Libraries: Leaping from the Nineteenth to the Twenty-first Century

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ABSTRACT

This paper traces computerization in Polish research libraries, from microfilming initiatives in the immediate post–World War II era to the inauguration of digitization programs from the 1990s onward. It describes the initiatives taken by the new, independent Poland during the 1990s to develop an information society, including library networking, computerization, and digitization, and credits the work of the Mellon Foundation in bringing changes to Polish libraries.

BACKGROUND

In our era of digital and virtual libraries, such as Europeana and the World Digital Library, someone who is not old enough can hardly imagine that there was a time when the only information and communication technologies libraries used in their daily work were card catalogs and photocopiers, telephones, and typewriters. The few exceptions were those slightly more advanced libraries equipped with a new and exciting technology like teleprinters, which supported information services, especially in the area of interlibrary loaning. Yet, the period we now consider “ancient” in library terms ended little more than a generation ago. The main theme of this paper is how libraries in Poland changed from manual to automated ways of operation. It describes the introduction of print-free technological change in the form of microphotography and digitization. This pioneering work was not easy, but with dedicated leadership and the initial financial support of the Mellon and other foundations and domestic grants, it became possible to take a giant leap from what was, essentially, a nineteenth-century mode of operation to a twenty-first-century computerized and virtual world.

MICROFILM INITIATIVES AND EARLY IDEAS ON COMPUTERIZATION

As late as the last decade of the twentieth century, most everyday library work in Poland was conducted manually, with little assistance from digital technology. However, Polish librarians were becoming interested in computerization similar to that reported by some researchers after their rare visits to Western countries or by writers like Melchior Wańkowicz, who had had a chance to visit American libraries during the 1960s and described the use of computers there. Moreover, Joseph Licklider's influential book *Libraries of the Future* (1965, translated into Polish in 1970) encouraged some Polish libraries to start both considering and implementing technological changes.

However, radical technological change in the library sector did not appear only in the form of computerization; before that, in the 1950s, many libraries had started to introduce microfilming technology, inspired by the use of microphotography in 1935 by Jan Rutkowski, a history professor from Poznań University who, like the famous Polish librarian Józef Grycz, had proposed its use in libraries. Grycz had been aware of a recommendation in 1906 by Paul Otlet to use microphotography as a way of alleviating costs and overcoming the limitations of space for storage. This proposal predated the more widely known idea presented by H. G. Wells in his *World Brain* (1938, p. 54) in which he suggested using microphotographic technology so that "any student, in any part of the world, would be able to sit with his projector in his own study at his or her convenience to examine any book, any document, in an exact replica." However, World War II delayed the introduction of the technology, and the next step was made by Karol Górski, a history professor from Toruń who began microfilming archival documents in 1948 (Drewniewska-Idziak, 2000).

The first big microfilming laboratory in Poland was established in the National Library in Warsaw at the end of 1949 when it initiated the microfilming of the most valuable collections of over 150 public and private institutions. Around 90,000 documents were microfilmed. In addition, reprographic units were created by other big research libraries—the largest in Wrocław, Kraków, Poznań, and Toruń—all of which were active and productive until the late-1990s (Drewniewska-Idziak, 2000).

When Polish libraries commenced computerization programs during the 1990s, there were serious discussions (if not battles) for several years between two groups: on the one side, there were those who still believed in the long life of microfilm; and on the other were those who argued that it was time to move to digitization, emphasizing that the time was right and that digital technology was safer in terms of preservation and was more convenient to use. For a number of years, both methods of copying library materials were used, but eventually, one by one, libraries decided

to discontinue the obsolete technology of microfilming, investing instead in digitization.

Since most research libraries in Poland kept the larger part of their collections in storage (increasingly on compact shelving), the possibility of automating them had been discussed on numerous occasions. However, support for such automation developed slowly. The reasons for this were primarily financial, but the difficulty of modifying old buildings also played a role. Nevertheless, by the 1960s, even though libraries (not only in Poland, but also elsewhere) remained suspicious of computerization, and despite the fact that the automation of library work was still at relatively modest levels, technological progress was officially acknowledged as being irreversible (Olejniczak, 1964, p. 75).

With respect to overcoming the problem of lack of storage space (one of the great benefits of microfilm), it is interesting to note the changes implemented by the Silesian Library in Katowice in a new building opened in 1998. Items were stored in an unconventional, fully automated, high-bay storage facility situated on the two top floors of the building. Not an especially popular arrangement worldwide (the British Library's system is a notable example), this is the only such solution in Poland. Some 320,000 books are held in 16,000 plastic crates, each containing around twenty volumes. The storage area is divided into five sections, each equipped with shelves eight meters high and eighteen long. In each of the sections, instead of a person there is a robot (called Mustang) that searches for books when ordered. However, instead of retrieving a single book, it transports the entire container in which the book resides to the reading room at a speed of three meters per second. The book is located by means of an electronically controlled system called Telelift-UniCar. The worrisome aspect of this system is that there is no logical, stable shelving order, which would make retrieval impossible should the system be shut down.

FIRST EXPERIMENTS WITH COMPUTERS

Because of the Western embargo on providing information technology (IT) to the Soviet bloc, the first experiments with computerization had to be based on the Riad mainframe computer, constructed in the Soviet Union, and on Odra, a mainframe constructed in Poland. The computing centers of a few universities and research facilities conducted the experiments and mathematical calculations; librarians were rarely involved.

One of the most advanced centers was the Technical University of Wrocław that, together with its library, was among the first to experiment with automation. In 1974, it began subscribing to and distributing Western databases like STN and DIALOG, which were available at that time only on tape. In 1997, the library created its own database and started cataloging books using its own APIN-MARC format based on USMARC. In 1990,

the library moved its catalog to the freely distributed CDS/ISIS system for information storage and retrieval, first developed by UNESCO in 1985. By the late 1990s, CDS/ISIS had become the most popular system among libraries and was used mostly for creating bibliographies (Talarczyk-Malcher, 1995).

The library of the Technical University of Szczecin started experimenting with computers as early as 1975. For that purpose, it created its own system, SIB, for collections and loan management. Plans included using it for recording information about research publications, for information management, and even for text processing. Unfortunately, these plans were too advanced and too expensive for the university and had to be abandoned. The library did not give up, however, and in 1978 implemented a new system for recording research publications; but this experiment also proved too expensive and less than ideal and was similarly terminated. In 1985, a third attempt was made to implement an information-retrieval system, the operation of which continued until 1990. In 1988, the library created its own cataloging system, with a module for information retrieval and loans. Again, it was not ideal, and many bugs were found, so the library looked for a new solution and finally purchased a small system constructed by a company from Poznań. That system became quite popular in the early 1990s among Polish libraries (Grzelak-Rozenberg & Łozowska, 1995). At present, this library uses the Aleph system. This example illustrates not only the difficulties encountered by libraries in improving their operations but also their dedication and interest in pursuing new technology.

After 1975, during the first minor opening up of Poland to the West, many research libraries started experimenting with computerization, but very few found it to be effective. Some, like the Wrocław University library, showed little interest in computerization until as late as 1992, when the first integrated library software, VTLS, was bought with the first Mellon Foundation grants to (four) Polish libraries (Ładomirski, 1995). Others, like the University Library in Toruń, began experimenting with the CDS/ISIS system as soon as the first PC appeared in 1980, starting with the construction of bibliographies and moving on to cataloging of the collections.

More importantly, in 1992, the Toruń University Library became the first to sign an agreement with the National Library, which is responsible for the production of the national bibliography. National Library records were used as a basis for cataloging, including an improved check of legal deposit. From this source, the library obtained approximately 90,000 records, to which only a few pieces of additional information, including call numbers, were added. This facilitated a speedy development of the computerized catalog; when a new system was implemented, the content of this catalog was converted and integrated.

Public libraries used the MAK system, constructed and freely offered by the National Library. The computer industry in Poland was developing during the 1980s, and some more systems were created, with SOWA and MOL among the most popular. One of the most advanced was PROLIB, for a while competing even with the American systems.

Notwithstanding the assistance given in places by the National Library, the experiments described above were essentially local in character. Significant progress could only be made if a truly national library network was developed.

NETWORKING

The first experimental network in Poland was the Inter-University Computer Network (Międzuczelniana Sieć Komputerowa, MSK) established in 1979 and transformed in 1986 into the National Academic Computer Network (Krajowa Akademicka Sieć Komputerowa, KASK) (Janczewski & Kosmulska-Bochenek, 1989).

In 1989, after the "Round Table" meeting in Warsaw between the Communist government and representatives of the opposition, real changes occurred in all areas of Polish life, including the information sphere. In 1990, Poland was accepted into the European Academic and Research Network (EARN), and in the same year, when COCOM withdrew restrictions, the first IBM 4341 mainframe computers were bought and installed in two main university centers, those of Warsaw and Wrocław. The other universities followed suit, and when the computer centers resolved the initial technical problems, they realized that their libraries deserved serious attention. In 1991, the Polish State Committee for Scientific Research (KBN) funded a complementary program on the creation of scientific knowledge repositories. (KBN, the main governmental sponsor of IT infrastructure development, was integrated into the Ministry of Science and Informatics in 2005.)

Following the Global Information Networks declaration signed in Bonn on July 8, 1997, and the publication of the "Bangemann Report" on October 10, 1997, the Polish Parliament issued a resolution on July 14, 2000, in which it decided to construct the legal basis for an information society (IS) in Poland. The government was obliged to prepare the foundation of an IS-development strategy, so in response it prepared a document, "Goals and Directions of the Information Society Development in Poland," and declared that by the end of May 2001, it would prepare another document based on translated eEurope+ documents. A discussion paper was then sent to several central cultural institutions and bodies. The result of this discussion was the "Strategy of Information Society Development in Poland in 2001–2006—an ePolska document—which established a strategic plan and budgetary needs for the implementation of an IS.

The fast-changing situation in technology and internet development

around the world are not the subject of this paper; the story is well-known and similar in each country. However, it is worth keeping in mind that these changes had a serious impact on library computerization in Poland, as elsewhere.

CHANGES IN LIBRARIES

After 1989, libraries also experienced change, including the provision of unlimited access to previously restricted literature, which, in fact, had been accessed during the Solidarity era (from August 1980 to December 13, 1981, when martial law was declared). Before they were opened up after 1989, library collections had experienced a number of disasters, most drastically during World War II when many books were burned. (Today, only their ashes survive in an urn on exhibition in the National Library of Warsaw.) During the cold war, authors not representing the officially accepted party line were placed on a forbidden list, their books having to be published abroad, mostly in centers of Polish immigrants. In Poland, the production of such books was only possible in underground, low-quality editions. From 1981 onward, there were many underground printing houses, issuing mostly bulletins, but also the books of censored authors. However, such books could not be collected by libraries and were circulated mostly through private channels. The few forbidden books donated to research libraries had to be kept in closed areas and never loaned to readers—with some exceptions, such as when demanded by persistent researchers. During this time, it was not possible to obtain works like Alexander Solzhenitsyn's *The Gulag Archipelago*, George Orwell's *1984*, and even Karl Popper's *Open Mind*. As a result, when Polish poet Czesław Miłosz (who lived in exile in France and the United States from 1951 to 1989) was awarded the Nobel Prize in 1980, few Polish literature teachers had read his books or even heard of him at all.

After 1989, changes occurred everywhere, including the publishing industry. Censorship was lifted and new publishing houses were created, giving libraries a wider choice of vendors to satisfy their readers' needs. The Western market opened up, but financial resources did not increase. In addition, researchers were demanding the latest research published in expensive foreign scientific journals and listed in bibliographic databases. Access to the chosen articles was offered first in digital form through the CD-ROM system, and later online. It was too expensive for each research library to individually acquire these materials, so purchasing was eventually centralized. In 1996, the KBN initiated the process of building common-knowledge resources accessible throughout the country via an IT network. In its first stage, development focused on providing access to leading international factographic databases and almost immediately included appropriately licensed top bibliographic bases and indexes (in particular, OVID, MATH, and ISI products). Soon afterward, full-text

collections from OVID (biomedical journals), Elsevier, and a few other vendors were incorporated.

These steps, however important, only gave access to bibliographic information and the full texts of foreign publications. Meanwhile, Polish bibliographies were still being published in traditional form, with longer and longer delays that made them useful only for historical research. Improvement was clearly required. Librarians had to join forces and work more quickly in order to keep pace with rapid managerial changes and technological development.

THE BIG LEAP INTO COMPUTERIZATION

Since the early 1990s much has been achieved in the Polish library system, not least the construction of an adequate technological infrastructure, including networking and data processing. As mentioned above, libraries had begun to experiment with building electronic bibliographic databases, or catalogs. It took quite a long time to develop these due to the many problems that the computer experts and computer industry had to resolve. The first dedicated software and hardware for library catalogs was quite primitive and complicated to use. However, when the transformation started, a few libraries were successful, and most large research libraries were then able to implement improved software and hardware. The libraries themselves had to learn about standards and formats, among other things. At the start, it was even difficult to choose the same character-set standard, as each library was using a different one. It was the same situation with the description format, with each library creating its own, some based on UNIMARC, others on USMARC, but all were different. The same situation existed with classification systems.

After the first experiments during the 1980s, more visible work started a decade later when a number of Polish libraries obtained grants from the Mellon Foundation and the European Commission (EC) for the implementation of integrated library systems. Because it was complicated work, libraries decided to join forces and work together, starting with such vital decisions as standards selection. In the early 1990s, a couple of trials were run in advance of decisions being finalized. It was then decided that for metadata creation and exchange, UNIMARC (exchanged for practical reasons in 1993 for USMARC), TCP/IP, and Z39.50 should be used, followed later by UNICODE. Authority files for the catalog records were also included as an obligatory standard, especially for libraries interested in cooperation. For the subject identification of the documents, the US Library of Congress's subject headings were chosen and then, for local reasons, customized into Polish KABA via French RAMEAU.

The work progressed well because libraries helped one another in sharing their experiences. They formed informal consortia to learn and work together on systems implementation. The consortia, later formalized,

were based on the purchased systems. The three most popular systems in Poland included the US VTLS; the Israeli ALEPH; and another US system, Marquise (renamed Horizon after changes in the system vendor industry) from Dynix Systems Inc. (sold later to the Ameritech Corporation, and after a few more changes established finally as SirsiDynix), which was the system chosen by the University Library in Toruń. The National Library bought the Innopac system by Innovative Interfaces. In big cities like Kraków (with VTLS) and Łódź and Poznań (with Horizon), local consortia were also created and included all types of libraries, usually with the same system.

System selection was not an easy task. When libraries obtained the first grants from the Mellon Foundation, they started to investigate the merits of systems. According to the promises of vendors, their systems were absolutely the best and could do everything that we might have wished. After signing an agreement, however, the situation often did not look so good. One particularly complicated example illustrates the problems encountered: namely, the Horizon system of Dynix. In 1994, Dynix, bought by Ameritech, changed its organization. As a result, the English staff with which Polish libraries had been dealing no longer handled the special requirements stipulated in their agreements (such as the local subject-headings index or closed-stack access). From that time forward, all those functions were reserved for the German office, which delayed the system's implementation until almost 2000. All versions installed before that time had bugs and many unresolved problem reports. Nevertheless, the system remained in use on a provisional basis thanks to the computer expertise at the NCU Library in Toruń, which solved many problems and sent to Dynix not only reports of the problems but also solutions.

Implementation of the library system was only one goal, the most important being the opportunity to share the results of the work: the catalog records that became possible after library computerization and the future creation of digital libraries. The first national initiative based on authority file creation, under the charismatic leadership of Anna Paluszkiwicz (1941–2004) from Warsaw University, started even before implementation of the systems. This successful cooperation brought the library community toward another initiative concerning the central catalog, NUKAT. This initiative was also funded by the Mellon Foundation on the condition of including three main actors on the Polish scene: the consortium of VTLS libraries (at that time with twenty-seven libraries); the consortium Libraries with Horizon (fifty-two libraries); and the National Library with its Innopac system. Preparation of the application for the grant and system selection took about twelve months. After a painful series of battles among the consortia due to different attitudes toward possible forms of cooperation, the VTLS system was chosen. Although doubts remained about that choice, all partners agreed that the national catalog should be

hosted and maintained by the Warsaw University Library, whose leading role and contribution to the development of library computerization in Poland was never questioned.

The national catalog, NUKAT, was not available until 2002, so its role was temporarily played by KaRo, the distributed search tool created by the Toruń University Library in a local initiative, where over fifty Polish library catalogs could be searched with the Z39.50 protocol using a variety of criteria. At the time of writing (at the end of 2013), it is still in use, and 220 catalogs can be searched from its main access point (<http://karo.umk.pl/Karo/>). NUKAT is managed by the Warsaw University Library, which did pioneering work with the system, new formats, and authority files. It is available online (<http://www.nukat.edu.pl/>), offering a single point of access and providing information on the holdings of Polish research and academic libraries. Each document description in NUKAT is connected by hyperlink with the particular libraries holding this document. Clicking on the link directs the user to the local database for additional information on book/journal availability.

NUKAT not only serves library users but is also an important tool for cooperation among libraries, providing opportunities for participating libraries both to create and to copy records already created by other libraries. At the end of November 2013, its holding was very impressive and included nearly 3 million (2,720,331) catalog records created by 130 libraries, as well as 3,608,729 authority records.

DIGITAL LIBRARIES

Bibliographic information and catalogs, however important and valuable, only make learning possible if the materials required are available at the cooperating institutions. One should also be aware that the available online information still includes only a small part of the library collections. More bibliographic data are also available but on different databases containing the scanned catalog cards.

Digital libraries had long been desired by librarians, and as soon as the required technology became available, libraries began to experiment in producing them. Some experiments have not survived; others have changed addresses, like an interesting initiative of Gdańsk University undertaken in 2001–2003 as a part of a UNESCO project and known as the Virtual Library of Polish Literature. Recorded on CD-ROM, it is now available online (<http://literat.ug.edu.pl/books.htm>) and includes digital versions of selected books with no copyright restrictions. Full textbooks are also available. Polish characters were coded in Central European ISO-8859-2. When compared with present digital libraries, this Gdańsk initiative now looks very modest, like the other initiatives from that time.

The first results of digitization were recorded on CD-ROMs, such as Copernicus's *De Revolutionibus Orbium Coelestium*, produced for Jagiellonian

University in Kraków by Neurosoft (the Polish partner of the Digital Equipment Corporation) and made available on its library's homepage. In the late 1990s after a flood, Toruń Public Library undertook the scanning of rare books using a Zeutschel Ominia microfilming camera. Later, the microfilms were scanned with a Canon MS400 at 400 dpi. Other libraries used similar equipment, but now, after only a few years, these achievements no longer look very impressive, even to those who initiated the programs.

Libraries with Horizon had been planning and discussing access to full-text documents since 1996. When assigning tasks to consortium partners for these activities, it was no coincidence that responsibility was given to Poznań Technical University, since the Poznań Supercomputing and Networking Center had started research on digital libraries at the same time. The system chosen for the pilot digital library was an IBM RS 6000 G40 with SSA discs. In 2002, dLibra software had been used for the first professional Digital Library of Wielkopolska creation. It was planned to keep full text in XML format, with dynamic conversion into PDF or HTML; instead of the PDF format, DjVu was chosen later on, which requires additional, less popular software for the readers (Lewandowska, Mazurek, & Werla, 2007).

The Polish government also recognized digitization as an important issue. The prime minister launched the Polish Internet Library (Polska Biblioteka Internetowa) in December 2002 and dedicated substantial funds to its creation; however, this initiative was carried out in an unprofessional manner by external vendors, and after several changes, the management of its more than 30,000 records was finally taken over by the National Library, which most probably gave up work on its improvement.

The dLibra software freely distributed by the Poznań Center became so popular that the number of digital libraries increased significantly, and the number of available copies as well. To improve access to the growing number of digital libraries, the Digital Libraries Federation was created, with a single access point to all digital resources (<http://fbc.pionier.net.pl>). Opened in June 2007, it offered access to 1,646,812 items digitized by 331 member libraries by the end of 2013.¹ The offerings of the federation service includes: distributed searching in available publications; distributed searching in digitization plans; and creation and recognition of permanent references to digital objects using their unique OAI identifiers. It is based on open communication protocols (OAI-PMH, RSS, Open Search) and is able to cooperate with all types of digital libraries and repositories using these protocols. The digitized materials remain at the institutions that own them; they do not have to be transferred to Poznań to be retrieved by users.

FROM A LOCAL TO GLOBAL WORLD

Libraries have always been aware of the value of cooperation, both local and international. The most creative librarians have always been interested in librarianship development and tried to be in the avant-garde. Since 1927, the Polish Library Association has been a member of the IFLA. Polish librarians also observed and followed the work of the International Federation for Information and Documentation (created by Paul Otlet and Henri La Fontaine in 1907 [dissolved in 2002]). The use of the same format for catalog cards and the popularization in Poland of the Universal Decimal Classification (UDC) based on Melvil Dewey's system can serve as an example. The UDC was implemented by the Warsaw Public Library as early as 1907 and became the most popular system in public and school libraries, as well as industrial libraries.

During the cold war, interpersonal relations became weaker, and the Polish connection with world developments in librarianship was possible mostly only through the literature. Books were an important medium, as were the most influential library journals. These included *Libri* and *Library Trends*, among others, to which a number of Polish libraries subscribed in spite of scarce resources. Some materials (or even the majority of them) were obtained through exchange programs.

After the collapse of the Iron Curtain, a number of foundations supported Poland (as they did other Central and East European countries), with the Mellon Foundation the most generous and the first to recognize the libraries' need for change. Grants also became available from the Open Society Institute, local governments, and the EC. The latter not only supported libraries financially but, equally important, included Polish libraries in research conducted by a variety of European libraries and other cultural institutions, such as archives, museums, and research centers. This eventually brought them into Europeana and made their resources available online to millions of potential users.

Unfortunately, few libraries exploited these opportunities to enter the international consortia. A number of reasons can explain this: too many activities during a time of rapid change; poor contacts with colleagues from other European libraries, which was the main requirement of all funding calls; the requirement to conduct all communication in English, a serious problem after being disconnected from the outside world for so long; and, last but not least, the demanding and time-consuming bureaucracy. In spite of these problems, however, some libraries joined the European projects, some of which are highlighted below.

First, visits to Western libraries took place in the framework of so-called TEMPUS-PHARE programs sponsored by the EC. The TEMPUS program had a few editions and helped support connections among universities. During its early years (1990–1994), only Poland and Hungary were included. In subsequent years, the program was extended to other

countries and offered a special path for university libraries. With this program, a dozen or so libraries had the opportunity either to attend special courses for modernizing libraries or simply to visit the libraries, to see their computerized systems at work, and—what was not expected in the beginning—to establish not only cooperation but also, in some cases, a genuine professional friendship.

When we were looking for Polish partners in CULTIVATE-CEE, a project devoted to cooperation among cultural institutions (archives, libraries, museums), there was a concern that partners from the archival sector could not take part because they were not yet connected to the internet. Fortunately, when the project started, the head office of Polish Archives established e-mail facilities, and all three types of cultural institutions started research on the possibility of using the same format for describing materials (books, manuscripts, objects). The broader project goal was to increase involvement and participation in the program and to create a pan-European network of cultural-heritage nodes.

For inclusion in the MINERVA project, created for the European Ministries of Culture, the Polish ministry designated first the International Center for Information Management, Systems, and Services (ICIMSS) and later the National Library representatives. The project, which was devoted to the coordination of digitization in Europe, resulted in a number of manuals still in use today by many European institutions. It also brought to life many other important initiatives and projects: for example, MICHAEL involved the creation of an inventory of digital collections; and ATHENA Plus shared the goal of its predecessor, ATHENA, in bringing into Europeana millions of objects mostly though not only from the museum sector. The same goal motivated the recently concluded project Linked Heritage, as well as the ongoing Europeana Photography project.

All of these projects had the participation of the ICIMSS, created in 1997 at the University of Toruń with the goal of providing a professional development program to library-management staff from Central and Eastern Europe. In this task, the ICIMSS was supported by the best library schools in the United States (University of Illinois) and UK (Sheffield University), among others. The ICIMSS converted into a research association in 2002, moving to some other activities and becoming a partner in many projects dealing with Europeana. For that purpose, it established the Library of Private Collections and is working on establishing its museum digital portal.

Among the other EC programs is TEL-ME-MOR, with the participation of the National Library, whose goal was to extend access to metadata, services, and digital objects to users. Together with the GABRIEL and TEL projects, it resulted in the creation of The European Library. Not only research libraries, but also some public libraries participated in international projects. The Olsztyn Public Library took part in both the

PULMAN (2001–2003) and its successor CALIMERA (2003–2005) projects. The results of the latter included reports on every country in the network; guidelines for local cultural institutions on social, management, and technical issues underlying digital service delivery; a solutions noticeboard for local cultural institutions providing information emerging from the industrial and research sectors; a research roadmap; and other documents and tools. It is also worth mentioning the DELOS-CEE project (2002–2003), with conferences held by the ICIMSS in Toruń and later in Prague as DELOS project events. This project offered training in digitization to librarians and archivists, in addition to translation of important materials in the area of digitization, including the Lund report.²

It is not possible to list all the collaborative projects in which libraries took part. More important than any individual project, however, were the results of those collaborations. By visiting foreign libraries, Polish librarians could compare their activities and try to improve their operations. In some cases, their confidence in their own way of operating was bolstered. The majority of libraries learned quickly that in the internet era, e-mail is the most useful medium for maintaining connections and that an institutional website provides the best visibility. Librarians started to attend international conferences whereby they not only learned from others but also presented their own ideas.

Some statistics about digital materials available on the Europeana portal may serve as evidence of the progress made during the last five years. When the portal was launched in 2009, Polish resources available there constituted well below 1 percent of the total (just 0.3 percent of the 6 million objects contributed from all countries—fewer than 20,000 items). According to the latest statistics (November 2013), Polish resources available in the Europeana portal are ranked tenth overall, with a total of 1,412,428 objects, representing 4.7 percent of the more than 30 million objects available.³ Such a big change was possible thanks to the Poznań Supercomputing and Networking Center, which created a system for digital libraries and distributed it freely or else for a nominal fee among Polish libraries. The center also took responsibility for the difficult process of data transmission to Europeana, playing the role of national aggregator. The center also contributes to Europeana technical development, taking part in a number of projects devoted to technology.

CONCLUSION

During the past couple of decades, Polish libraries and librarians working on DBMS (database-management system) implementation have, in effect, traveled from the nineteenth to the twenty-first centuries. In this short period, librarians have had to learn not only about rapidly developing and changing IT but also about a number of other activities, such as applying for grants and projects and dealing with vendors. After obtaining the

financial resources for system implementation, they had to contend with individuals at their own libraries who were opposed to drastic change—people afraid of radiation emanating from computers or the difficulties associated with new ways of approaching complicated processes. We should remember that the first programs were not as easy to operate as the present ones. Entering data into computers was time consuming, and at the start took longer, in fact, than manually typing catalog cards. Another important factor was a shift in the library hierarchy: usually, higher, older managers were the last to learn about new technologies, while younger and more dynamic librarians became leaders in the changing environment. In many respects, change was forced on the new generation of librarians, who responded well. As Mellon Foundation representative Richard Quandt (2002, p. 250) observed,

what has also been especially impressive in all the countries of the region is how rapidly the librarians transformed themselves from a group that was not held in high regard during the Communist period and rightly regarded itself as a victim into one of self-confident professionals, who became inveterate problem solvers, because there was no other way to realize their vision.

The required shift, however, was too difficult for many to accept. Neither did the trailblazers have an easy time of it, but fortunately the consortia created were relatively successful in achieving progress, despite the many internal battles that had to be fought.

Polish libraries' sudden leap into the twenty-first century would not have been possible without the Mellon Foundation, the first of its kind to offer financial support to Central and Eastern Europe. Mellon's Quandt must be commended because of his understanding of the existing problems and because he waited patiently for solutions to be found by librarians who felt obliged not to let him down. Without this support, computerization would most probably have happened anyway, but be only half as far along as it is now.

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NOTES

1. Digital Libraries Federation. (n.d.). Available publications. Retrieved December 31, 2013, from <http://fbc.pionier.net.pl/owoc?action=ChangeLanguageAction&language=en>
2. The Lund report presents the results of the EU meeting on April 4, 2001 in Lund, Sweden. The conclusions and recommendations derived from this meeting are known as the “Lund Principles” and were further developed in the “Lund Action Plan,” which establishes an agenda for actions to be carried out by member states and the European Commission particularly in establishing a forum for coordination and to support the development of European digitization policies and programs.
3. Europeana. (n.d.). Facts and Figures [2013]. Retrieved November 30, 2013, from <http://www.pro.europeana.eu/web/guest/content>
4. The various activities and international projects undertaken by ICIMSS are listed on its homepage, <http://www.icimss.edu.pl/en/>

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