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CHANGING THE PARADIGM OF ACQUISITION AND CATALOGING IN POLISH RESEARCH LIBRARIES. THE IMPACT OF NEW INFORMATION TECHNOLOGY

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Major publications: *KKZBUJ : OPAC nowej generacji*? [KKZBUJ – a new generation OPAC system?], *Baza e-PKA – rewitalizacja Starego Katalogu Biblioteki Jagiellońskiej* [The e-PKA base – revitalisation of the old Jagiellonian Library catalogue]. In: *Komunikacja naukowa w środowisku cyfrowym* [Research Communication in the Digital Environment], collection edited by A. Korycińska-Huras and M. Janiak (2014); edited volume *Uniwersytet Jagielloński – Biblioteka Jagiellońska – Jagiellońska Biblioteka Cyfrowa* [Jagiellonian University – Jagiellonian Library – Jagiellonian Digital Library] (2013); and *Formaty MARC 21 rekordu bibliograficznego dla dokumentu elektronicznego* [MARC 21 bibliographic record formats for electronic documents] (2003), *dla filmu* [...for film] (2008), *dla dokumentu ikonograficznego* [...for iconographic documents] (2013) and *dla rękopisu* [...for manuscripts] (in preparation).

KEYWORDS: Information technologies. Building collections. Cataloguing collections. Computerization of libraries. Collection management. Access to databases. Hybrid library. Shared cataloguing. Cooperation of libraries.

ABSTRACT: **Thesis/purpose of the article** – the purpose of this article is to present the impact of new information technologies on building and cataloguing library resources, and the ways modern research libraries have been functioning in the last 25 years. **Methods** – the analysis presented in the article is based on a thorough review of the literature, including conference proceedings, reports documenting the activities of research libraries, a study of statistical data illustrating changes in library holdings as well the author's own knowledge and expertise acquired in the course of her work at the Jagiellonian Library and in cooperation with other libraries. **Results / conclusions** – the dissemination and implementation of new information technology has resulted in libraries

starting to work in a hybrid model. Using modern tools they support both analogue and digital data as well metadata. Librarians, analysing the use of resources offered to users, favour to an increasing extent an access library model. The creation and development of this hybrid information environment has resulted in a wide cooperation of librarians that seems to facilitate meeting the coming challenges and changes in the way libraries will function in 21st century, where an important part will most likely be played by the further development of information technology.

INTRODUCTION

The rapid pace in the development of information technology, serving mainly the modern processing of information, demonstrates the great value that lies in information in the contemporary world – its acquisition, collection, processing, storage, protection, management, presentation and communication to stakeholders. The term "information technology" covers a whole array of technical means (computer hardware, telecommunication networks, software) as well as tools and methods for data processing. Its intensive development resulted, among other things, firstly from the dissemination of microcomputers in the late 1980s and 1990s, and then from the development of the Internet. For Poland, November 20, 1990 – the date of the first email sent there – is regarded as the beginning of the Internet era (Malik, 2011).

These phenomena changed the world not only for information specialists or for a general public, but also, and to a great extent, for the libraries. The computerisation of library processes is considered to mark a new era in libraries. As Karwasiński states, "the year 1992, or the date of implementation of the first VTLS integrated library system, is argued to be the beginning of the computerisation of research libraries in Poland, consisting of automating routine operations and services" (2015, p. 160). It meant that libraries were faced with a great many new possibilities, a new information space to be developed, a new bibliographic space to be worked out. It is emphasized by a number authors, including Nahotko, that the use of computers and wide area networks "changed almost everything: the format of information, the speed of its creation, delivery and distribution, as well as the needs and expectations of users" (2010, p. 165). The intensity of these processes gradually led to the transformation of the library operation model to a hybrid one, especially evident in the case of academic, big research, and public libraries. In the new model, there is a coexistence and cooperation of data, metadata, information, traditional and electronic tools. For a library of the 21st century it is crucial to integrate its physical space with the virtual world.

Stock building has been one of the primary roles of any library, next to organising collections and lending them. Libraries have always been valued and evaluated based on the collections they hold (Schmidt, 2004). One of the objectives has been to collect a large number of publications, while also collecting several copies of the same publication ("multi-copies"), both when it comes to monographs and to sets of journals (Dąbrowicz, 2015, p. 133). Now however, in the era of intensive information technology use, it should rather be said that one of the most important concerns of any library is the proper management of its collections – in a broad sense of the word. It should be, thus, assumed that properly organised collections or – to put it in more adequate and contemporary terms –properly organised access to the collections will be a decisive factor of a functional library (Dąbrowicz, 2015, p. 129). Clearly, that has changed the model of development for library holdings – from the one used so far, the not-quite-economical "just-in-case" model, to a "just-in-time" model using the latest technologies to provide the user with access to a desired publication (Piotrowicz, 2006, p. 252). That brings subscription databases into the picture. Managing a subscribed collection includes testing the interest in a database that one is planning to buy, and monitoring the use of a database by users, which has a significant impact on the continuation or discontinuation of its subscription.

Today, the building of library resources is done in both analogue and digital environments, with libraries becoming consequently more and more hybrid in character. In such libraries there are analogue resources as well as resources and metadata in electronic form coexisting, and additionally there are databases available that are located on remote platforms. Although printed types of resources still prevail among holdings acquired by a library, the number of electronic resources is constantly increasing. This includes electronic materials on physical carriers (CD-ROM, DVD, memory stick), as well as resources born digital, obtained from publishers in the form of files. This trend can be clearly observed in the numbers of electronic documents acquired by the National Library (Biblioteka Narodowa – BN) in the framework of the legal deposit[1]. In 2010 there were 32,432 electronic documents acquired, and in 2015 almost twice as many (50,243), while the number of documents at the end

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[1] According to the Regulation of the Minister of Culture and Arts of March 6, 1997 on the list of libraries entitled to receive legal deposit copies of individual types of publications and the rules of their submission (OJ 1997 No. 29, item. 161), the right to legal deposit of audiovisual and electronic documents in Poland is held by two libraries: the Jagiellonian Library and the National Library.

of 2015 amounted to a total of 236,144 items (Sprawozdanie BN, 2010; 2015). In the Jagiellonian Library (Biblioteka Jagielońska – BJ), a collection of monographs and serials born digital included, at the end of 2016, 10,360 items, while the number of inventoried electronic documents amounted altogether to 24,192 items.

The hybrid character of the library holdings was also influenced by the possibility of a modern use of collections acquired earlier. A number of libraries who possess primary, often unique, source materials are now taking advantage of the possibility of their digitalisation, acquiring their digital copies and, of course, broadly sharing them (Schmidt, 2004). The portal of the Digital Libraries Federation (Federacja Bibliotek Cyfrowych – FBC) – an internet service whose aim is to collect, process and share information about the holdings of Polish digital libraries available online – lists activities of 129 digital libraries (as of 13.01.2017), developed mostly by libraries. The total number of digital items collected and available through this portal is over 4.3 million, including 3.2 million via open access (FBC, 2017).

ACCESS LIBRARY MODEL

The intensive development of information technology at the end of the last century, new publication formats (electronic journals and books, multimedia, databases), and political changes in Poland led to, among other things, an increase in Polish publishing of traditional books, an intensive development of the press market, and a lack of difficulty (apart from financial) in accessing foreign literature. Consequently, librarians realised that Polish libraries must leave the model of the "resource" library and implement the model of the "access" library, as well as introduce a strategic method for preselection and selection processes (Dąbrowicz, 2015, p. 133). Consequently, libraries have experienced two clear changes. First of all there was a clear shift of focus from having large holdings of their own to organising access to remote resources. Modern technologies enable connections with remote data sources, so that a library does not have to rely only its own holdings (Grygorowicz, 2005). Second, a shift from a printed form to an electronic version occurred. Both changes can be well illustrated by the case of subscriptions to foreign journals. It has been a common action among academic libraries to limit the number of printed foreign journals and instead offer access to e-journals. This started with a move away from subscribing to printed journals, at first only from those that had parallel e-versions, but gradually towards primarily acquiring journals available online. In 2000 there were 833 printed titles of foreign journals in the Jagiellonian Library, six years later only 621 titles; in 2007, 330 titles; in

210, 320 titles; in 2015, 227; and finally, in 2016, only 160 titles. The opposite trend can be observed in the case of subscriptions to databases. The Jagiellonian Library acquired its first database on a CD-ROM (Humanities Index) in May 1992, and in 1994 it already offered eight databases to users. The first database available online via telnet through the Jagiellonian Library was SwetsScan in 1995. As the years passed by, subsequent subscribed databases were added to the library's information environment: full-text, factographic, bibliographic and abstract databases, all located on remote platforms to which access was provided by the Jagiellonian Library within the domain of the Jagiellonian University (UJ) and via extranet. In 2004, the Jagiellonian Library had already subscribed to 17 databases, and in 2016 there were 81 databases available in the UJ domain (which facilitated access to 186,356 e-books and 59,685 e-journals, while 908,402 user sessions and 1,216,707 downloads were registered) (OGR, 2016).

A similar tendency can be observed in other libraries. For example, in the University Library in Toruń (BUMK) there were 731 printed titles of foreign journals in 2004, but in 2007 only 298, in 2010, 165, and in 2015, 223. Parallel to this, 69 subscribed databases made 38,392 titles available online (Sprawozdania, 2004, 2007, 2010, 2015). In the University Library in Poznan (BUAM) there were 725 printed foreign journals subscribed to in 2004, in 2005 there were only 682, and in 2015, 365 – at the same time the Library provided access to 240,798 e-journals via subscribed databases and open access (Jazdon, 2004, 2005, 2015).

Access to the databases is possible 24/7, from a user's computer at home or wherever else, after proper authorization. A great advantage of this kind of data source is the facility of search and selection of obtained information, the ease of downloading data, and the possibility of checking the number of quotations or the value of the Hirsch index. The University of Warsaw Library (BUW) has one of the richest offerings of databases among academic libraries, complementing the traditional resources offered on the spot in the library building – 146 subscribed databases making 203,373 e-books and 155,657 e-journals available (Biblioteka Uniwersytecka, 2015, p. 22).

PRESELECTION AND SELECTION OF MATERIALS

As mentioned above, libraries nowadays must engage in a process of careful preselection and selection of resources to be added to their holdings. Actions connected with the preselection of materials to be introduced into library holdings, as well as selections of resources already inventoried, have been undertaken in every library, even in the National Library and the Jagiellonian Library, which are legally obliged to col-

lect and archive all Polish publishing production. It has to be admitted, however, that now it is done on a broader and more decisive scale. The preselection process in the BJ and the BN is mainly concerned with quantity, specifying which publications are to be stored in only one copy, and which should be stored in more copies. In other libraries that obtain legal deposit copies, preselection is conducted according mainly to quality criteria. For example, in 2015 in the BUAM the preselection of legal deposit copies was quite strict, with only 31.37% of copies being entered into registration (in 2014 it was 30.63%, in 2013, 29,9%). It has to be emphasized, however, that in terms of numbers, legal deposit copies were the most important source of acquisition (96%) – other sources include purchases, which encompass a large collection of e-books (Jazdon, 2015). The rules governing these actions are specified in the rules of acquisition and completion of holdings – now also often available online (BJ, Biblioteka Medyczna UJ CM, BN).

Selection of materials already registered into a library's holdings is conducted in all libraries. Even the BJ, which had never before withdrawn resources already registered in the inventory, had to formulate rules on the selection of resources and has appointed a selection committee (Zarządzenie nr 3, 2013). In the BUMK in 2015, there was a selection conducted in the multi-copy book collection: 107 titles were checked and 608 volumes were withdrawn from the inventory (Sprawozdanie za rok 2015). In the BGUAM in 2015, a large selection process was begun, mostly regarding journals that are archived in an electronic version, as well as publications not belonging to the library's profile and not used in practice due to, for example, the language of the publication (Jazdon, 2015). In general, the following crucial criteria used to decide on the withdrawal of documents from a library are termed: "over-read", outdated, more copies than needed, not compatible with a library's process, or in bad physical state (Gębołyś, 2012, p. 24).

THE RELATION BETWEEN ANALOGUE AND ELECTRONIC RESOURCES

In the past, the ratio of books to serials in a library collection was an indicator used to evaluate a library. However, as collecting and organising access to electronic holdings began in Polish libraries at the end of the 20th century, and as the trend has continued also into the 21st century, it would be more proper to analyse the ratio of the number of printed materials to e-materials, as proposed by Schmidt (2004, p. 376). The Jagiellonian Digital Library, at the end of 2016, provided access to 306,552 items of digitalised materials. If 246,041 items of licensed e-holdings purchased by the BJ, and 24,192 items of e-holdings inventoried

were added, then the number which would made up 10.14% of the to-
tal number of both volumes and items acquired and traditional holdings
(5,685,057 volumes and items). One can also make a comparison between
the ongoing influx of traditional and electronic materials. The increase
in the number of traditional resources in the Jagiellonian Library in 2016
amounted to 127,739 volumes and items, while the number of electronic
resources (both stored and available through remote access) was raised
by 39,870 items, thus constituting 31.2% of the traditional resources' in-
crease (Zbiory biblioteczne UJ, 2016). Comparisons for other selected li-
braries is presented in Table 1.

Printed and electronic resources in selected libraries

Library	Online databases	Books available in online databases % traditional holdings	Printed books	Titles of journals available in online databases	Titles of printed journals collected continuously % online
Jagiellonian Library	86	189 315 7,2%	2 620 534	58 036	9236 15,9 %
University of Warsaw Library	146	203 373 9,8 %	2 068 743	155 657	5966 3,8 %
Library of the University of Gdansk	12	3 083 655 287,9 %	1 070 884	142 597	2 636 1,8%
Poznań University Library	30	142 795 8,4 %	1 693 512	240 798	2955 1,2 %
University Library in Toruń	69	166 228 12,3 %	1.344.297	38 392	8838 23,02 %
Main Library of Warsaw University of Technology	149	159 702 18,3 %	871 469	8 357	1117 13,3 %
Library of the Zielona Góra University	54	37 799 7,5 %	501 098	7147	1299 18,1 %

Source: author's compilation based on annual reports for 2015 available on library websites.

METHODOLOGY AND TOOLS OF ACQUISITION

The development of new technologies has also changed the methodologies and tools for acquiring resources. One of the signs of the impact of computerisation on the processes of collection development is the replacement of printed sources of information about a book by electronic resources available online. The BJ withdrew expensive reference publications, usually obtained as gifts from peer Western libraries (e.g. ISBN Directory, Ulrich's, Verzeichniss Lieferbarer Bücher), from the reference collection to the stack rooms (Dąbrowska, 2014). It is now publishers' catalogues available on the Internet or disseminated by e-mail, as well as their homepages, bookstores, or book wholesalers that facilitate purchasing books via the Internet. Moreover, the web directories of national libraries, union catalogues (NUKAT, KaRo, KVK, WorldCat, the British Library, the Library of Congress, COPAC), newsletters offered by publishers' portals and bookshops, bookstores and publishers websites are commonly used to obtain information on new publications. The Bibliographic Guide – Poland's national bibliography registering monographs based on the legal deposits acquired by the National Library, and the main source of information about Polish publications – has been offered since 2009 as a PDF file (with 52 volumes a year); it is also made available in an updated bibliographic database. This does not, however, mean that libraries are no longer browsing offers of wholesalers who supply books to them, or visiting bookstores, who are after all in constant contact via e-mail and are sending offers of new books available. It has to be stressed that the traditional and modern tools of librarians are perfectly complementary. When making a decision regarding a purchase, physical, tactile contact with a book, which can be leafed through, is not to be underestimated when compared with reading descriptions and viewing a publication on a monitor screen (Bosacka, 2010, p. 96).

The changes described above also required establishing a new position in the library. The position of specialist in managing database subscription, whose role is to deal with electronic collections, their management, the proper selection and organization of access to electronic databases, monitoring compliance with licenses and agreements, cooperating with suppliers, and promoting and monitoring the use of resources bases (Dąbrowska, 2014).

To obtain more favourable contract terms and negotiate lower prices, libraries tend to cooperate and group themselves into consortia so that they can negotiate consortium licenses with suppliers, the purchase of which is supported by grants from the state budget. The state budget provides funds for purchasing national licenses that allow making scientific databases available, including those with collections of electronic journals. In 2017, all national licenses existing thus far will remain valid and available to all academic institutions in the country; this includes licenses for

such databases as Elsevier, Wiley, Science, Nature, Springer, Scopus, Web of Science, and the EBSCO database (WBN, 2016). As noted by Dąbrowska (2014, p. 180), building traditional stock is based mainly on a library's own resources, whereas in the case of online resources the state's influence on the organization of access is visible: almost from the beginning, funding for the subscription of e-resources has come from external sources, either from state budget grants or earmarked subsidies from the budget of some other entity that had been providing additional funds for the subscription of databases.

Consequently, librarians have at their disposal information technology with tools that facilitate the conscious building of library holdings responding to the needs of users. Studying the use of resources has never been so easy For printed stocks, computer catalogues offer information about the most borrowed books, about books with long reservation lists, and about publications damaged or lost. That information informs decisions about purchasing new copies or subscribing to a database. Analysis of statistics on the usage of databases can be helpful in making decisions about what is collected, although usually this is not a decisive factor, as it could happen that a rarely used database is still subscribed to on account of the quality and uniqueness of its data (Cieraszewska, 2015). A library's portal has also become an important tool for building stock – it is where lists of new books, of items sought by the library, of duplicates for exchange, or of publications to be given out are published; it is also where users can find forms enabling them to suggest new purchases.

The very process of building stock was computerized using a variety of programmes, often before the implementation of integrated library systems. Surveys done by Dąbrowska in 25 academic libraries show that, while on the one hand, in 2013 18 libraries were using an acquisition module, two had such a plan, and only five did not intend to undertake this type of action, on the other hand, libraries were also using additional programs and databases for support, and sometimes traditional inventories as well. In 15 libraries there were no organisational changes, while in 10 libraries changes consisted in merging departments of collection development with collection processing, or separating out departments collecting journals and merging them with processing departments (Dąbrowska, 2014).

CHANGING THE PRACTICE OF CATALOGUING – FROM CARD CATALOGUE TO RELATIONAL DATABASE

The computerisation of large academic and research libraries was launched with the implementation of the main module of the integrated library system – a cataloguing module supported by authority files. Computer catalogues supported by integrated library software, , such as VTLS

(now Virtua), Horizon, Aleph, and INNOPAC, were created to be modular and with parameterized functionalities. Although various libraries chose different library systems, for data recording, luckily, the same format – MARC 21 – was adopted. With the development of automated catalogues, librarians had to become familiar not only with new tools (computer, software, database), but also with the new structure of the catalogue, the concept of a bibliographic record, the notion of authority files, the concept of the data entry format – basically with a whole new philosophy of cataloguing.

This new philosophy of cataloguing means that the act of cataloguing is not only about preparing a bibliographic description, it is also about selecting an appropriate type of bibliographic record, introducing a part of the information in the form of codes, and indicating the relationship of a new bibliographic record with an authority file and other bibliographic records by copying appropriate access points. In other words, librarians have begun to create catalogue databases.

Computer catalogues or databases, though modelled on a card catalogue, have, however, a different data structure. While in a card catalogue a separate card is created usually for each copy of a book, in a catalogue database a bibliographic record becomes its basic element. They are a conceptual whole, which contains bibliographic information at a level sufficient to unambiguously identify a document being catalogued, together with its access points, allowing it to be located in a given database, as well as numbers and codes necessary for data processing. The data in a bibliographic record is so versatile that it represents the edition of a document and serves to identify all copies of that edition. Such versatility of the bibliographic record has enabled the downloading of ready descriptions from catalogues of other libraries, an option eagerly used by librarians. The individual features of a copy (number, location, etc.) are included in item records connected to a bibliographic record; the number of item records connected to a bibliographic record illustrates the number of copies of a given document in the possession of the library.

The era of card catalogues, created separately for each category of a document together with separate alphabetical and subject catalogues, came to an end. Now, in one catalogue database, supported by one authority file, bibliographic records are created containing the bibliographic descriptions and subject characteristics of all library resources. Descriptions in the catalogue include various types of documents – books, journals, sound recordings, sheet music, videos, cartography, iconography, documents of social life, old prints. In this period of hybridisation of library holdings, cataloguers have had to learn how to create bibliographic records for electronic materials that inherently contain different types of documents, databases, and other materials online, with limited and unlimited access. The cataloguer must decide how to select an appropriate description. In some cases one

bibliographic record represents both a printed book and its electronic version one-to-one, or a digital copy of a book made in the library and placed in a digital library. A special note is added to the bibliographic record in such a case, and if the digital object is accessed remotely, an electronic address is also given. It could be said that one bibliographic record is drawn up for a hybrid resource, giving the bibliographic record a new versatile dimension. The data in the bibliographic record serves at the same time to provide information on the printed resource of the library, and to refer to the electronic version or the digital copy of the resource in the digital library, repository, or the Internet.

What is now being catalogued is both current new documents acquired by the library as well as old materials received by the library before the era of computerisation (re-cataloguing). The retrospective processing of materials is vital, as users generally believe that documents not listed in the computer catalogue are not available in the library's holdings. Furthermore, analogue materials are catalogued in the computer catalogue for digitalisation purposes; in such a situation a MARC 21 bibliographic record is converted to the Dublin Core format in a digital library with relevant data added. Librarians also draw up, in a variety of formats, metadata necessary to support an institutional repository. In the process of cataloguing, batch data processing is also quite crucial (e.g. nightly automatic uploading and processing of files in a local database, with new and corrected bibliographic and authority records, as well as developing and running scripts controlling the database).

THE AUTHORITY FILE

While headings on catalogue cards were unified only for a given library's holdings and its catalogue, building the authority file in a computer catalogue – defining unified forms of access points and matching the relationship between an authority heading and formats that have been rejected, thus enriching the search capabilities of the computer catalogue – meant an absolutely new quality to the library environment. Obviously, it meant also a challenge for the librarians, who needed to understand that the authority file is an extremely important element in constructing a catalogue database, conditioning access to bibliographic data, database consistency, efficient searching, and the exchange of bibliographic records.

Developing rules on creating authority files and norms concerning the form of headings, as well as the need to familiarise themselves with the format of the authority file and the computer creation of files has fundamentally changed the cataloguer's work. Nowadays, the process of cataloguing a new item starts with the preparation of a missing unified heading in the authority file, needed for the access point, and then the new head-

ing is copied to a new bibliographic record. Authority headings, which define the unified version of an entry and its variants, are both versatile and reusable – the same unified heading can be an access point in various bibliographic records, in one or in a number of catalogue databases, and for different categories of materials.

In Poland in the mid-1990s there was no central authority file. Bearing in mind that introducing authority headings into one database and sharing it with other libraries eliminates unnecessary duplication of work (Paluszkiewicz 2008, p. 43), in 1993 four academic libraries using a common VTLS software (the Jagiellonian Library, the Main Library of the University of Gdansk (BGUG), the Main Library of the Academy of Mining and Metallurgy and the University of Warsaw Library (BUW)) established a joint authority file, transformed in 1996 into the Central Authority File (CKHW). It was located on a server belonging to the BUW, and for over half a year, because of the lack of full network connectivity, personal, corporate and subject heading records were transferred and uploaded from tapes.

In the early 1990s, VTLS libraries undertook a joint effort to create a new language for subject headings tailored to the requirements and possibilities of a computer catalogue. It was assumed that the diversity and detail of KABA[2] vocabulary, allowing detailed subject cataloguing, would be presented in the form of an authority file. "The development of the authority file for subject headings and linking it into a logical whole with the authority file for bibliographic description was a pioneering project on the scale of Polish librarianship" (Głowacka 1997, p. 7). The KABA language is compatible with LCSH[3] and Rameau[4] languages, and Polish-language headings have equivalents in French and English taken from these languages. With this solution, there is a possibility of "computer-aided translation of subject descriptions created for the documents in the catalogue and bibliographic systems that use LCSH and Rameau languages" (e. g. OCLC, BN-OPALE) (Głowacka 1997, p. 8). The next phase in developing a modern library started in 1995 with building a common database – the Central Journal Catalog (CKTCz) – on the BGUG's server (first with VTLS libraries involved, later joined by libraries using other systems).

UNION CATALOG

The extraordinary opportunity given by the joint work and network connectivity brought with it the concept of a union catalogue. This was built using a bottom-up approach in 1998, thanks to the initiative of academic

[2] KABA = Katalog Automatyczny Bibliotek Akademickich [Automatic Catalogue of Academic Libraries].

[3] LCSH = Library of Congress Subject Headings

[4] RAMEAU = Répertoire d'autorité-matière encyclopédique et alphabétique unifié

and research libraries gathered in groups according to the library system used – VTLS/Virtua or Horizon, and INNOPAC. At the beginning of the 21st century, in July 2002, the process of building a union catalogue, NUKAT, was started. It was based on a method of co-cataloguing created sources of prepared bibliographic and authority records. Thus, there was a qualitative difference between building an information system based on the holdings of Polish libraries available through the Internet (Burchard, 2005, p. 183), located throughout the whole of Poland, or even based in Rome or Paris. Earlier, CKHW (721,425 authority records) had been migrated to NUKAT, and in September 2002 bibliographic records from the CKTCz database (21,943 records) were uploaded. Thus, NUKAT also took over the functions of CKHW and CKTCz (Paluszkiewicz, 2008, p. 49). Data collected in NUKAT had been growing very rapidly – in 2008 there were already one million bibliographic descriptions, in 2011 more than 2 million, and in January 2015 already 3 million bibliographic records. Currently (01.12.2017), the NUKAT database contains 3,528,152 bibliographic records and 5,505,790 authority records. In the third year of its operation there were already 49 libraries engaged in its development; today NUKAT is co-created by more than 150 cooperating libraries and approximately 1,400 librarians.

NUKAT is now developed by libraries with different sets of profiles: university libraries, polytechnic libraries, libraries in fine arts academies, academies of music, and of physical education, as well as medical colleges, military colleges, institutes of the Polish Academy of Sciences, church institutions, public libraries, and many more. These libraries use different software (Aleph, EOS, Expertus, Horizon, INNOPAC, Koha, Mateusz, Patron, Prolib, Sowa, Symphony, Virtua). NUKAT bibliographic records include the names of libraries having a given document in its holdings, which are registered as hyperlinks directing a user to an appropriate local catalogue. One can then use the desired publication in a given library, or order it via the interlibrary loan. Publications available free of charge online can be reached by clicking on an appropriate link in the description in the NUKAT catalogue. Links to paid resources, subscribed to by the library (e-books, e-journals), can be found in local directories. Of course, in addition to bibliographic descriptions in NUKAT, CKHW is still co-created, ensuring the accuracy and uniformity of terms used in the descriptions of documents. In the descriptions of the NUKAT catalogue there are three languages used for subject headings – KABA[5], JHP BN[6], and a Polish language version of MeSH[7].

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[5] KABA Subject Headings.

[6] Subject Headings of the National Library.

[7] Medical Subject Headings.

The NUKAT catalogue contains an almost complete body of information about Polish publishing production since its inception. However, there are descriptions of documents issued before 2002 constantly being added as time saved, thanks to cooperative cataloguing, can be spent on retrospective cataloguing. In addition, in 2009-2013 the EU project "NUKAT – Digital Information Highway" was implemented, one of whose tasks was to merge local catalogues with a central one. Thanks to this operation, NUKAT was enriched by nearly 300,000 new records for publications issued before 2002.

Databases can be evaluated by two quantitative criteria: the number of bibliographic records and the number of locations, i.e. places where there are physical copies held by libraries (Jacquesson, 1999, p. 166). NUKAT now includes more than 3.5 million unique bibliographic records, and 14 million locations have been reported so far (from the copying of bibliographic records) – therefore, it could be roughly estimated that up to now at least 10,500,000 duplications of cataloguing operations were avoided. I say "at least" because in the local catalogues of individual libraries, one bibliographic record taken from NUKAT can cover more than one copy of a given document. One description serves on average four locations – saving, as a result, time needed to perform three cataloguing operations per one description entered. Descriptions of the latest materials, materials most frequently appearing in libraries, are reproduced in local catalogues repeatedly (30 times and more). It has to be emphasized that that cooperation with the union catalogue brings libraries noticeable monetary savings.

The statistics do not present data on copying authority records because a record copied once supports a given heading in all bibliographic records in which they are applied. The benefits of cooperative cataloguing has contributed, on the one hand, to the dynamic development of local catalogues, forcing libraries to change their method of organising their cataloguing work, while, on the other hand, it has led to breaking up libraries' isolation. "Every day about 1000 modified records and 250 authority records in files with modifications are transferred from NUKAT to local databases. Such work would not be possible for any team of any library working on its own" (Praczyk, 2015, p. 233). Moreover, in 2015 users performed a total of 32 395 431 searches in NUKAT – an average of 2,807,973 searches per month (Centrum NUKAT, 2015, p. 4).

GLOBALISATION OF CATALOGUE DATA

One common practice is to create one catalogue for all libraries belonging to a library and information system of a given university (e.g. an online catalogue of the University of Warsaw libraries, an online library catalogue of the Adam Mickiewicz University in Poznan, the Main Catalogue of Wrocław University of Technology Library). The Computer Catalogue

of Jagiellonian University Libraries is a catalogue database of the Jagiellonian Library, Medical Library, and 46 libraries of the University network. The Jagiellonian Library, while managing the central university catalogue is also in charge of cooperation with the NUKAT central database.

It is important also to remember that libraries cooperating within the framework of NUKAT have, since 2006, contributed to building global information on the collections of libraries of the world thanks to its cooperation with global databases. The most important of these is the WorldCat union catalogue. Since 2011, cooperation with the WorlCat includes reloading the entire NUKAT database (bibliographic records) with the collective symbol for the NUKAT database added and sending updates about new and deleted records on a monthly basis (Centrum NUKAT, 2015, p. 10). In the WorldCat catalogue there are currently (as of January 17, 2016) more than 3,199,161 bibliographic records with the NUKAT symbol. It is worth mentioning here that authority records from the NUCAT database are also transferred to a virtual international authority file called the VIAF. In 2015, preparatory work and tests aimed at supplementing CKHW records with VIAF numbers started (field 024 of the authority record). This will enable the correlation of CKHW records with their counterparts in a semantic network, and will increase the presence of the information collected in CKHW databases using data bindings based on standardized numbers, as for example with Wikipedia. The VIAF is an open access database what will facilitate dissemination of data collected in NUKAT in a wider information environment than a purely library-based one. Also, since 2015, NUKAT data on old prints has also been submitted to the CERL Consortium (Centrum NUKAT, 2015, p. 11).

UNIFIED CATALOGUING RULES

"Changing the form of catalogue from card to automated ones not only does not free librarians from the application of the principles of the catalogue; quite the contrary, it requires even more rigorous compliance and development of common solutions" (Padziński, 2000, p. 8). In order to make it possible and to ensure high quality bibliographic records, it was indispensable to develop uniform rules for cataloguing, as the initial work on the creation of local computer catalogues was based on each library's own methods, used for years in the construction of card catalogues with local solutions and habits. Mandatory use of the NUKAT manual of cataloguing, prepared in line with the Polish Standard of Bibliographic Description based on the ISBD, and harmonized rules, regulations, and procedures spread to local catalogues, resulting in the alignment of their quality. Ongoing collaboration within NUKAT regarding the building of CKHW led to the employment of uniform headings and to using KABA itself for subject processing

of documents. Standardisation of catalogue data allows for easy search using search engines (e.g. KaRo), with users receiving faster and more precise information on a sought document. At the moment, in Poland new rules for cataloguing – Resource Description and Access (RDA) – are being discussed. RDA is a standard designed for the digital environment, associated with the FRBR and FRAD conceptual models, which is to function in the network and ensure the interoperability of library data with data from other sources (Śnieżko, 2015, pp. 75, 78, 80). RDA Principles are universal and recommend a new approach to the organization of data in a catalogue database – it is not a bibliographic record that is most important, but the bibliographic entities with their corresponding attributes and relationships that occur between them which have become the basic cataloguing element. With the authority record it is important to standardise the access point, but also to provide attributes and relationships that more accurately describe, for example, what may affect linking one person with other people in the network (Śnieżko, 2015, pp. 78-79). Both the BN and NUKAT (and cooperating libraries) have implemented only a few changes inspired by the RDA standard (e.g. abolition of the rule of three, replacing abbreviations with full terms, new fields to specify the type of content, media type). As a result, a hybrid structure was created with some elements of the RDA standard introduced into the bibliographic record in MARC 21 format based on ISBD.

CATALOGUER'S WORKSHOP

The process of cataloguing today is not just the creation of the metadata in the appropriate standard, it is also data management and processing. Therefore, cataloguers have to familiarise themselves on a regular basis with new versions of software, their new functionalities, new scripts / tools for handling, or data conversion. The NUKAT Centre provides help with its online "Workshop" that offers cataloguing formats, instructions, procedures, materials, findings, and other information necessary for daily work. Moreover, it conducts courses, trainings and discussions (webinars) online. Although a series, "File Formats" (22 volumes), with instructions on formats for different types of documents and different issues related to formal, subject, and authority cataloguing is still available in a print version, an e-version is provided by NUKAT on its website, together with information on current arrangements, procedures, discussion results, and recordings of meetings and conferences. Each cataloguer can also build his or her own workshop, creating bookmarks to databases and catalogues on the Internet, not to mention daily usage of the e-mail account to communicate with other cataloguers. It is also worth mentioning an interesting phenomenon of blogs dedicated to standards, publications, research work, and implementations associated with cataloguing in its broad sense

(e.g. "The Order of Things" – a blog of the Workroom of Theory and Bibliography Organisation of BN, or "Lost in Translation" – a blog of the Descriptors' Workroom of BN).

CONCLUSIONS

The computerisation of library processes and network connectivity has resulted in a substantial change in the practice of both collecting and developing library resources. Information technology has provided tools for effective information processing, automated many processes, and has enabled the integration of information resources of libraries, the building of common catalogue databases, and the arranging of access to databases on remote platforms. But above all it has led to the cooperation of librarians, within a given institution and between libraries. A well-verified idea of cooperation in the creation and development of the hybrid information environment suggests that libraries will be able to meet coming challenges (e.g. implementation of RDA, FRBR, BIBFRAME, Semantic Web) so that changes in catalogues and search tools are consistent with the needs of users who "more and more are changing from local users to remote users" (Bianchini, 2015, p. 343). Here, new technologies will no doubt continue to have a significant impact on the direction of changes in the way libraries will function in the 21st century.

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