Libraries as Publishers of Open Access Digital Documents: 
Polish Experiences

Marek Nahotko

Institute of Information and Library Science, Jagiellonian University
ul. Gronostajowa 7, 30-387 Kraków, Poland
e-mail: nahotko@inib.uj.edu.pl

Abstract

This article presents the experience of Polish libraries in the field of electronic publishing. There have been described some solutions applied for creating digital libraries and institutional repositories. Nowadays, Polish libraries seem to be passing from the stage of digitization of their own collections (usually of historic value) to publishing new digital-born documents in their own institutional or multi-institutional repositories. This activity should be (and is) developed in co-operation with university press companies.

Keywords: digital library; open access; electronic publishing; Poland

1 Introduction

In Poland, a large number of societies dealing with research communication (authors, librarians and users – readers of scientific publications) are satisfied neither with the operation of today’s research communication system nor information exchange. Besides, negative effects can be noticed not only in research communication, but also in other information processes and communities, what is visualized, for example, in a constant decrease in the level of books reading at public libraries. The reasons for the dissatisfaction are, among other things, a sharp increase in the prices of publications, copyright-related issues, problems pertinent to intellectual property as well as a still longer and longer time interval between arriving at research results and their publishing. Polish libraries are active participants in the discussions held about the items said, and they seek to extenuate the problems, which come up and to submit some proposals of practical solutions aimed both at reforming the system of publishing and relative processes. Their actions are chiefly focused upon the items connected with access to the resources. The first goal is heading off the ‘crisis of journals’; the problem consists in fighting against prohibitive prices as they make it considerably harder for one to find the desired publication. The other is the limitation of effects brought about by ‘access crisis’, which means not only limitations in permanent access to documents already published, e.g. by preventing one from gaining access to scientific electronic journals when the pertinent license has expired, but also impediments to having access to older publications, still esteemed by users.

2 Methodology

In this article have been utilized the data collected during research into Internet websites, dedicated to projects related to electronic publishing, whose initiators are mainly libraries operating on dLibra software. Then, there has been also presented a case study of a digital library which, due to a relatively long period of operation, its experience and achievements, is a good example for illustrating the trends, which nowadays dominate in Poland in the field of e-publishing performed at libraries. While analyzing the problems under presentation, there has also been made use of interviews held with librarians – authors of new forms of publishing; the Internet bulletin board was also used for this purpose. The analysis has covered as well the relation of publishers of Polish scientific journals towards the idea of electronic availability of their publications. The journals placed on the list of the so-called score journals by the Polish Ministry of Research and Sciences have been marked out for the analysis said. An author publishing in such a journal is awarded proper score, highly appreciated when his research achievements are subject to evaluation. According to the Ministry, those are top level journals in their fields; therefore, their publishers should take care of spreading the contents under publication also electronically. Hence, it might be supposed that the position of journals not included on this list must be yet worse.
3 Results

Recently, some initiatives related to electronic publishing, and first of all, to making digital libraries, have appeared in Poland. This phenomenon is typical for the library sector at the beginning of the 21st century. Not only do libraries collect traditionally their resources and render them available to the public, but they also take over some new tasks, for instance, electronic publishing of documents. On the turn of the 20th and 21st centuries, in many forums (for example, at numerous conferences), Polish librarians debate the issue of involving libraries in electronic publishing. Nowadays, another stage which consists in the implementation of practical solutions, has commenced. Initially, attention was focused on the digitalization of libraries’ own collections, mainly for their protection and archiving. Later on, there appeared also some projects aimed at electronic publishing of newly born documents, usually born-digital. Such documents are published in digital repositories through the mediation of librarians who administer them.

Position of libraries

In Poland, libraries started their actions related to building digital libraries with the digitalization of their own collections at the beginning of the 21st century. The survey carried out in 2003 showed that the digitalization was performed in 25 libraries, and in 14 of them were special purpose-built laboratories [1]. According to the latest information collected (end of 2006), 115 libraries deal with digitalization—51 of them are at university level schools, including almost all university libraries (16) and technical university libraries (11); instead, 48 of them are public libraries.

Initially, most initiatives were short-term tasks, whose purpose was mainly taking immediate actions and performing services as ordered by users. In consequence, they turned out to operate with certain irregularities and were affected by various, often subjective factors (equipment, staff, finances). Some libraries established special divisions within their organizational structures; others preferred services performed by external companies.

As digitalization was developing, it was necessary to make certain decisions on the selection and choice of materials for digitalization. Those problems were often solved by library managers and specialists, employed mainly at the divisions dealing with special collections, the collection acquisition and circulation as well as with it protection and preservation. In most libraries, digitalization programs cover first of all old prints, manuscripts, incunabula and 19th century journals and magazines. The main purpose of the actions mentioned was not only protection of valuable resources, but also meeting the new needs of library users.

Reasons for digitalization of library collections:

- The necessity of protecting the collections possessed against destruction and making them accessible to a large number of readers; those collections are of high value from the viewpoint of cultural heritage;
- The need of rendering university press books, textbooks and other learning materials more and more accessible, as well as of making them adapted to use in distant learning (e-learning);
- Readiness for involvement in the promotion of university level schools through popularization and spreading of research and culture potential as well as intellectual production of university staff (series, journals);
- The necessity of becoming active participants in the national strategies eEurope, ePoland and in the strategy UE i2010, as well as the need of participating in the initiative of digitalization of collections of the top Polish libraries.

Lastly, the digitalization process of the resources held in Polish libraries has been quickening its pace. The libraries plan to maintain this pace in the nearest future. Among other things, this process is favored by a reduction in prices of IT hardware and services.

Anyway, the quality of digitalizing operations still needs improving. A part of electronic versions have been compiled from poor quality materials, e.g. old microfilms, which will cause them to be useless soon and the digitalization process will have to be repeated. Another unsettling information is the lack not only of any uniform standards for recording and archiving digital documents, but also of certificates to determine the durability of digital records media (some collections are recorded on CDs). Therefore, neither the future nor the accessibility of such resources is certain.

In order to coordinate the works and to secure a more close co-operation among those libraries which render digital publications accessible, there has been established a consortium called Digital Library Alians [2]. Its aim
is to develop and to intensify the actions related to acquisition, presenting and popularization of digital resources connected with both the cultural heritage in different Polish regions and research resources produced at respective Polish university level schools. In consequence, the co-operation and the funds raised due to joint efforts should lead to a development of regional networks of digital libraries which are supposed to constitute a stable structure, and to an unification of standards and an optimization of the solutions adopted.

Polish libraries – both academic and public – participate in electronic publishing in two ways, by:

- Making digital libraries - which contain documents digitalized (scanned) from originals, collected and stored in traditional (printed) library resources. Originals are often of value, and access to them is hindered. Those are usually historic documents to which the copyright is no longer applicable;

- Creating repositories of digital documents (articles, PhD, MA theses, reports etc.), whose authors are researchers employed at institutions provided with a repository. Those are documents for which the copyright provisions are applicable.

In both cases said, libraries become publishers and editors of electronic documents; in most cases those documents are digitalized copies of traditional publications. So far, in neither case we can say about any traditional roles played in both fields by libraries. Therefore, because of new roles involved, librarians face many new problems to be solved in the matter of new technology and organization application.

There can be distinguished two organizational models of libraries and/or digital repositories in Poland:

- institutional (academic libraries, Polish National Library), including 7 libraries working on dLibra software;
- regional models, focused mainly on major university level schools, sometimes also on regional public libraries; they consist of 2-23 institutions, chiefly libraries, but also of museums and archives.

**dLibra Software**

Most initiatives presented so far are based on Polish software called dLibra, compiled at the Poznan Supercomputing and Networking Center (http://dlibra.psnc.pl/). Nowadays, this software is applied in a few dozen libraries (Fig. 1). This software serves for professional making of collections of digital objects. It allows to collect and to render digital objects available in Internet in various formats (e.g. txt, html, pdf, djvu). Each object may consist of any number of files and is described with metadata (MARC, Dublin Core etc.). Each implementation of dLibra software includes the three main elements working in the client-server configuration (CF Fig. 2):

- The server of the digital library/repository, responsible for the performance of all library functions, usually operating on the dedicated hardware, not accessible directly to end users;

- An application of the editor and administrator (client) which allows them to enter digital objects, their descriptions and execution of other similar functions:

- End user’s application (client), based upon Web interface, and allowing one to have customized access to the objects within a collection.
dLibra allows us to implement the majority of international standards, presently under application worldwide, for example RSS, XML, RDF, MARC, Dublin Core or OAI-PMH. It can be upgraded by independent programmers under condition of free access to the newly prepared software.

Publications are placed to the system by their authors directly or with librarian’s intermediation. Any author of a publication can modify texts previously compiled, which leads to their new editions. Those editions consist of files which also may have various versions. Editions, in turn, can be published or not; they can be also made accessible for a certain time until the fixed date.

It is also possible to make group publications serving, in turn, for combining single publications which have some common features e.g. successive journal issues or series. Within a group publication may operate other groups, too. Each group is provided with its own description. Publications may be grouped into collections. Each publication may belong to more than one collection. In the case of assigning a group publication to a collection, all publications within a group are automatically assigned to this collection. Collections may be divided into sub-collections, which leads to a tree structure. Collections are provided with their own descriptions, also copied to a sub-collection with a possible modification.
Publications collected by dLibra software are indexed by popular search tools, like Google; hence, those are not resources of any hidden (invisible) Web. The architecture designers paid much attention to indexing of descriptions of digital objects by search engines, which has led to quite a good effectiveness. Another functionality, very important for the user, is a possibility of searching the contents of all dLibra resources from the level of each system implementation (Cf Fig. 3, option: ‘Search remote libraries’). In consequence, irrespective of the library the user has chosen at the beginning of his/her search, he/she can search all digital libraries consisting one network, with one search tool [3].

**Case Study – Kujawsko-Pomorska Digital Library**

One of the oldest and largest digital libraries in Poland is the Kujawsko-Pomorska Digital Library (KPDL). In order to set it up, in 2003 there was established a consortium of libraries led by the Nicolaus Copernicus University in Torun (north-western part of Poland) and its library, with participation of other two regional high schools. It is also planned to co-operate with local public libraries. Each cooperating institution places their own digital resources on a joint platform, and administers them in the scope of compilation, updating and access rules. KPDL is a part of the Project of building open information society ePoland, which in turn constitutes a part of eEurope. EU’s financial share was 75%.

The resources of KPDL digital objects consist of three collections:

- Research and teaching collection aimed at improving the quality of teaching by securing access to digital copies of textbooks, monographies and research articles;
Cultural heritage collection which is to include the most valuable rare books, manuscripts, books published in the 19th and 20th century, to archive records, music notes, emigration, cartography and iconography collections;

Regional records which will include publications, articles and occasional materials on the history of the Region of Kujawy and Pomerania [4].

Collections are divided into smaller groups as needed. Materials are assigned for digitalization by three libraries, which bear joint responsibility for the KPDL resources, namely two academic and one medical (Cf Fig. 3). Access is first of all given to teaching materials in the field of medicine (university notebooks, journals and monographies published before 1945, and a self-published journal ‘Biological and Medical Sciences’). Other branches of science are represented by regional historic journals, subject to digitalization in co-operation with two chief regional public libraries. Instead, the Nicolaus Copernicus University Library offers access to the sources on the history of the region, emigration collections, engravings and Vilnius records [5], so much essential for the history and tradition of this University. The Library also digitizes teaching materials (e.g. set books for philologists), not subject to copyright restrictions. So as to avoid repetitions, the lists with materials to be digitalized are agreed upon both electronically and at monthly meetings of the editing staff.

The co-operating university level schools publish as well their own, contemporary materials and research papers. The authors of such works sign proper licence agreements in which they may reserve the range of access to their work: no limitations in the whole Internet, at their own university only or access to the users of consortium libraries only. On the same basis, they give their consent to the KPDL for electronic publishing of their texts. The authors hand over their works free of charge.

It was not difficult to select the software for the digital library under project, since libraries operating on dLibra software had been already in existence (Fig. 4). It was acknowledged that such a platform is provided with the fundamental functions, indispensable for any digital library: cataloguing and giving access to text and graphic files, searching of documents through any words taken from the description or contents of the document, collections management, navigation within a publication or limitation of access to a selected group of users. A significant feature of dLibra was the compatibility allowing one to work with the library system Horizon, used in the libraries of the region.

Before a publication can appear in the KPDL, it must go through certain stages (in the brackets are those who are responsible for their performance):

- Section and assignment of documents for digitalization (selecting librarians) based on rules as agreed upon;
- Compilation of objects ready for digitalization as the so-called list (selectors);
- Queuing of the documents assigned to digitalization and queue control (editor);
- Technical works on a document and its handover to the digitalization lab (selectors);
- TIFF format scanning and archiving (technicians);
- Processing of OCR scanned files into DjVu format (CT staff, technicians);
- Compilation of a bibliographic description for a local catalogue in Horizon system (MARC 21 format), conversion into dLibra (Dublin Core format) (catalogers);
- Publication in the digital platform (editor);
- Control of metadata in dLibra and Horizon systems, amelioration of the resources and possible corrections (main cataloger) [6].
Procedures compiled for respective stages provide the following actions:

1. Assignment of documents:
   a. determination what should be digitalized and how to do it,
   b. compilation of lists with no more than 15 items, with detailed data for processing (scanning quality, color, and others),
   c. uploading of lists on a joint disk accessible in Intranet.
   Responsible: librarians responsible for respective collections.

2. Queuing of documents (lists):
   a. queuing of lists, priority assignation, setting the sequence of scanning,
   b. keeping the lab informed about any queue and that the performance of a task is possible,
   c. hand-over of lists to the digitalization lab,
   d. constant control of the digitalization process and of the compliance with the procedures.
   Responsible: KPDL Editor

3. Scanning and archiving:
   a. a staff member orders documents for scanning by contacting the person who is signed under the list,
   b. the staff member signs the list for a librarian who supplies the materials, and the former considers the list as a lending form,
   c. scanning (in the lab) of documents as queued on the list; any remarks about the scanning result are addressed at the editor,
   d. processing of the scanning result with the programs enclosed to the scanner (picture correction, framing etc.),
e. entering the file under a standard name (shelf number is a file name or folder name for many files); assignment of catalogue numbers to the box with the carrier of the archival digital version of the document; physical description of the archival digital version (file format, carrier type and recording date, resolution, color detail level etc.),
f. transmission of final files for further processing,
g. delivery of materials to the division of formal working against receipt, like in b/.
Responsible: Digitalization lab staff.

4. Processing of the files created in the scanning process:
a. obtaining of file formats (DjVu, HTML, PDF and others) as planned in the process of assignment and preparation; OCR for some objects,
b. handover of files to the editor for further operations.
Responsible: Digitalization KLab Staff, CT specialists.

5. Publication on the digital platform:
a. combining an object with a description,
b. uploading of files either to one or more dLibry collections as indicated,
c. supplementing of a description in dLibra with the archival version metadata, if any.
Responsible: KPDL Editor.

6. Compilation of a bibliographic description:
a. cataloguing in Horizon,
b. placing final descriptions in the target dLibra collection,
c. constant amelioration and quality control of descriptions in dLibra,
d. making corrections to dLibra, review of indices,
e. handover of books to the bookstacks or to the reading room as specified on the list.
Responsible: librarians responsible for respective special collections.

7. Control of metadata and transmission of a description to NUKAT [7]:
a. entering of the new data related to a digital object to the existing records in NUKAT database,
b. compilation of new records with a re-routing to a KPDL object,
c. combining of existing records in NUKAT database.
Responsible: chief cataloger.

According to the list said, the respective tasks are carried out by a team consisting of various members who have different levels of skills and qualifications:

1. Project coordinator – administration, finances, cooperation with partners, promotion, content and quality supervision, negotiations on copyright with authors.

2. Coordinator’s deputy – supervision over the CT part of the project, hardware, software, contracts with suppliers, tenders, standards.

3. Administrator – project files, finances, reporting, personal matters, correspondence and others.

4. Editor – edition of digital library objects, idea of resources and its administration, coordination of works of the team which compiles and enters documents.

5. CT specialist – software, supervision over dLibra software, engineering solutions, statistics.


7. Chief cataloguer – bibliographic description, metadata, amelioration of entire resources, standards.

8. Technicians – digitalization, supervision over the lab, scanning standards, objects archiving.
Situation of the university press publishers

Nowadays, in the process of research paper publishing, the role of the author of a publication, viz. the compilation of a text becomes the easiest one. But problems will start soon after. First, one must get some funds (grant) for publication. When finally apportioned, this money turns out to be halved. That is why the publisher usually refuses any royalty for the author, considers the entire project as an unprofitable task, which has no positive effect upon the development of any enterprise. All advertising and marketing activities spell only more expenses; that is why from the publisher’s viewpoint the best solution would be withdrawing the item already published from distribution at all. Other activities carried out by researchers in the course of the publishing procedure, like preparation of reviews are also performed free of charge, which yet worsens the unfavorable situation mentioned.

In addition, access to the information is hindered by improperly arranged book trade. For being commercial entities, bookshops do not deal with academic books as usual [8]. Their activities are targeted at mass consumers who, for example, purchase such items, like Harry Potter; instead, the sale of single copies of scientific texts goes beyond the boundaries of commercial risk.

A large number of university press publishers try to send their items by themselves, often through Internet bookshops; however, not all of them resort to such a solution. Then, there will also appear other problems, for instance, mail-order sale of a low circulation book whose publishing has been refunded, and in consequence, the publisher has already got their profit; such a situation may be seen as a contingency, not profit. University press publishers divide their items into those they have got to publish at cost due to their role played in academia, and those on which they can gain some profits. Of course, professional marketing refers to the latter.

In turn, this means that in the process of publishing of academic items it is necessary to find a new solution in which libraries, especially academic ones, may and should actively participate. Academic libraries begin to take over the functions pertinent to university press publishers. Practically, those publishers are by definition non-profitable entities, always in deficit. This will lead to establishing a kind of electronic library publishing houses, a part of which will become electronic repositories of publications supposed to be used free of charge within a reciprocally advantageous cooperation held with other institutional and regional repositories. Due to such a cooperation, it will be possible to economize on publishing and by giving access to a large number of non-commercial (yet valuable) low circulation publications. Eventually, a large number of university press publishing houses will become superfluous. Their today’s number arises from the fact that each university level school/college, however small it may be, has an ambition to have their own publishing house. In consequence, there are many microscopic publishing companies, and in many cases their professionalism and potential are exiguous.

Moreover, the process of publishing academic texts will be accelerated; as of today, it takes years to bring them out as publications. Such a situation results in part from the top-down order coming from the government agencies in the matter of having the quality of research and academic publications evaluated. The aftermath of such an evaluation is the list of scientific journals as published by the Polish Ministry of Sciences; any author who has published in them is assigned a score enhancing the evaluation of his research achievements. Therefore, the editors of the magazines from this list have their hands full for a few year time or more.

4 Discussion

As a result of the actions taken by all persons and institutions involved in contemporary research communication, one can notice a change in the roles assigned in the process of making electronic publications. After a short time, indispensable for preparing such changes, we can expect serious modifications to the operation of publishing companies and assignments performed by their staff; nevertheless, such modifications will also refer to librarians and book dealers. In a more or less conscious way, representatives of those professions get ready for the changes and modifications to come soon. Such changes will also refer to scientific community. Authors become editors and publishers; instead, publishers deal with the aggregation of contents and contribute with their own value added. Librarians turn into digital librarians, which is related to their participation in electronic publishing.

According to the actions enumerated and reported in the case study, the establishment of a repository administered by the traditional library or consortium of libraries entails changes to the organization because, those take over new functions. A part of tasks performed in the digital library demands only that librarians should change their way of working and their habits (e.g. transit from MARC 21 cataloguing to metadata, like Dublin Core). Other actions entail completely different skills, so far typical rather for publishing companies than libraries, e.g. compilation and edition of digitalized contents.
Differences between traditional and electronic publishing can be described by dividing each research communication process into four stages at which concrete functions are performed:

- Description of the idea and conceptions arising from conducted research;
- Certification of values of the described ideas and research results;
- Distribution of ideas and results by making them accessible to prospective readers interested in them;
- Archiving of results so that they might be utilized successively.

It is evident that such functions are performed by each system of research communication, either traditional or contemporary, based upon new digital technologies.

<table>
<thead>
<tr>
<th>Function</th>
<th>Process</th>
<th>Performed by:</th>
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</tr>
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<tbody>
<tr>
<td>Registration</td>
<td>Delivery of a digitalized text</td>
<td>Librarians</td>
<td>Repository</td>
</tr>
<tr>
<td>Certification</td>
<td>Review</td>
<td>Researcher – reviewer</td>
<td>Publisher of the printed original</td>
</tr>
<tr>
<td>Circulation</td>
<td>Open repositories</td>
<td>Librarians</td>
<td>University level schools, local government</td>
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<tr>
<td>Archivization</td>
<td>Permanent access</td>
<td>Librarians</td>
<td>University level schools, local government</td>
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Table 1: Model of Polish repositories

In compliance with the model said, one may state that Polish initiatives are endowed with a certain, separate set of features if compared with similar initiatives developed in other countries. In the Polish model, authors do not provide repositories with their latest publications; instead, old items (often 100 and more years old, to which the copyright provisions are inapplicable), are supplied by the librarians who have scanned them. Since Polish repositories (mainly regional) are often established by public libraries, they are financed from local government budgets.

Eventually, Polish repositories are dominated by archival resources which consolidate the role of the library in the field of archiving and museum functions, but such repositories do not play the main role usually attributed to them, since they make no contribution to the acceleration of research communication. Such a situation may result from the absence of agreements in the field of author’s rights and copyright. It is still unclear which solutions will be adopted. Especially, two of them are under consideration: solutions as applied in Wikipedia, and Creative Commons. As of today, respective institutions make their own agreement/contract models to be used while receiving texts from their authors to be published in the repository.

A solution of today’s difficulties related to research communication in Poland seems to be a cooperation between libraries and university publishers so as to make an Open Access publishing system. The base for such a cooperation should be a modification to today’s Polish model of academic/research publishing. Scientific institutions publish their own items (mainly journals and series) to be exchanged for those from other institutions (also from abroad). Many scientific centres convert their published items into the electronic form. Those journals are usually of non-commercial nature – they are financed from different sources – directly by government agencies and research institutions.

The transition from the traditional library via digital library to the digital publisher is a part of processes leading to a development of digital research and science. It should facilitate innovativeness, by making new ways of production and popularization of research results. Due to new IT methods and technologies, it is possible to make research communication more streamlined at all its stages – from making texts, via evaluation of their quality, administration, circulation and archivization.

For assessment of Polish academic publishers, of interest could be also some data regarding scientific journals published by small university press publishers and research societies. Parallely be stressed that practically all such journals are brought out by small publishing companies, since there is no large, commercial publishing house which deals with this business. Among the journals placed on the polish government list (available on website WWW: http://www.nauka.gov.pl/mein/_gAllery/13/66/13662.pdf), one may find top score items; if you publish in them, it will contribute greatly to the evaluation of your academic achievements. About 75% of the journals have their own websites. As far as journals with websites are concerned, in 48% of cases, one may gain
access to full texts (Cf Fig. 5). Instead, 52% of them place on such websites contents and/or abstracts (sometimes very general data). It means that in Poland the process of making the contents of scientific journals available to the public in electronic mode has already started, but in this field we are still behind the level of 80-90% of journals available online, as in Western Europe and USA.

A large part of those publications is published in English. As far as the magazines from the government list, available in Internet, are concerned, 75% of them are available in English. They are made accessible in wide networks, which can thus secure a possibility of their popularization (wide distribution), also due to the absence of a language barrier. In particular, this refers to journals dealing with medicine, sciences and mathematics.

Quality control often consists in selecting materials by the editors; therefore, there is often no typical reviewing. However, this is not any problem in small circles of specialists in narrow fields of science, since those specialists know each other. In such circles, it is easier to perform quality control according to the reputation of respective researchers and research institutions (faculties, institutes).

5 Conclusions

In Poland, there have appeared some new initiatives related to electronic publications. One of them is the initiative of Interdisciplinary Center for Mathematical and Computational Modelling (ICM) [9] in Warsaw, and the Library of the Warsaw University, which proposes the establishment of a national repository of research texts named DIR. The repository could include as well the collections from the digital libraries already existed. The core of the project is to be the Virtual Library of Science, already in operation (http://vls.icm.edu.pl). The cooperating institutions might provide DIR with their own electronic documents (scans or versions made as electronic) with the metadata added. The model of cooperation assumes the storage digital objects by various ways:

i. In DIR, only;
ii. In local repository (digital library), only;
iii. In both places at the same time.

In ICM-DIR, materials would be given a final retouch, and their presentation in Internet could be secured. In consequence, there would be created a central, but scattered collection of Polish science accessible via one searching interface.

A model of open access repository of digital objects in conjunction with new publishing processes as performed in libraries proves to be more and more successful in Poland. The process of delivering the value added as a result of publication is not contradictory to the values of the open access idea. Experience shows they may complement and support each other, particularly when researchers try to expand and develop their research due to the application of new forms and possibilities of electronic publishing. The creation of digital libraries and repositories in Poland is an interesting example of the process of integration of digital libraries, repositories and publishing activities as is carried out by librarians in their traditional libraries. Those processes are under way now; therefore, not all their effects are known yet.
In such a way there appears a change in the publishing paradigm, like in the period following the invention of printing, when texts previously available only in manuscripts went to print on a large scale. Materials previously available in print are nowadays digitalized so as to be included in the worldwide resources of digital objects. At the same time, new born-digital objects are being collected, and their availability will be higher because the original (author) version of all publications is digital and has been ready to use for a long time.

Notes and References


[5] Nicolaus Copernicus University in Torun continues traditions of polish university in Vilnius, existed since 1579. After 1945 it was removed to todays polish territory, as well as a lot of polish citizens.


[9] ICM is well known in Poland because of central subscription of abroad scientific journals for polish libraries.