Ministry of Education, Culture and Research



The project „Modernization
of academic library services in Moldova”

Ane LANDØY, Silvia GHINCULOV, Angela REPANOVICI

INTERNATIONAL TRENDS IN ACADEMIC LIBRARY DEVELOPMENT

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FOREWORD

Continuous training of employees is the strategy for developing of successful institutions. Within the project "Modernization of academic library services in Moldova", financed by the Norwegian Cooperation Programme in Higher Education with Eurasia, realized in partnership between 18 university libraries from Republic of Moldova, the University of Bergen, Norway and the Transylvania University of Brasov, Romania, the librarians from the Moldovan universities were trained by organizing workshops, summer schools and strategic planning workshops. These activities have been carried out over 3 years, starting with 2016.

In achieving the objectives of the project we had a professional international team that guided the librarians from the Republic of Moldova in the process of modernizing the services and implementing the new information technologies.

The editors of this volume wish to share this benefic experience by publishing materials that address all the topics of interest debated on the project platform: new trends in information service, marketing, scientometrics, bibliometrics, open access, digital institutional repositories, information literacy, research data management, pedagogical techniques and others.

The Ministry of Education, Culture and Research of the Republic of Moldova is present in all the projects of library modernization, and now comes with financial support for editing of the publication "International trends in academic library development", supporting by this the results of our institutions in promoting the changing role of university libraries in the digital information age.

The book is addressed primarily to the university librarians who will be able to use the information in the work process, in writing new projects and for improving in the field. The book is useful to all the leading factors in universities, ministries for the use of university libraries as supporting institutions for education, scientific research and progress.

The book also addresses to the users in order to understand more deeply the important role of the university library in their professional training, the modern tools through which the learning and academic writing process is made easier, and the documentation becomes an innovative activity. The internationalization of all activities has proved to be in the interest of all.

The sustainability of the collaboration within the project is ensured by the signing of the Collaboration Agreement between the participating institutions for the period 2020-2023. By signing this document, 22 organizations from our partnership have confirmed their intention to

focus on efficient cooperation outside the project, to contribute to the development of the information society, the improvement of professional services and competencies, the dissemination of best practices and the exchange of experience between librarians.

This publication represents a moment of pride and satisfaction that together we were able to hold a real professional debate in which the notorious names in the science and practice of information participated. Several world-wide experts in the field of libraries participated in the training of the staff from the Moldovan libraries: Andrew McDONALD, member of the IFLA Council, emeritus professor at the University of East, London, United Kingdom; Sanda ERDELEZ, prof., PhD, University of Missouri, USA; Ismail SERAGELDIN, PhD, director of the Alexandria Library and director of the Executive Board of the World Digital Library, Alexandria, Egypt; Jesus LAU, PhD, Veracruz University, Mexico; Ane LANDØY, Bergen University Library; Angela REPANOVICI, PhD, Prof. Transylvania University, Brasov, Romania; Manolis KOUKOURAKIS, PhD, Director of the University of Crete Library, Greece; Mioara VONCILĂ, Director, University Library of Galați, Romania; Nicolae CONSTANTINESCU, Kosson Community, Romania; Serap KURBANOGLU, prof., PhD, Hacettepe University, Ankara, Turkey; Nelly ȚURCAN, prof., PhD, State University of Moldova; Robert CORAVU, PhD, University of Bucharest, Romania; Anna CHULYAN, PhD, director of the Library of the State University of Languages and Social Sciences Brusov, Yerevan, Armenia and others.

We hope that the project activities, services and new information products will enhance the image of the library in our universities and will maximize their ability to effectively mediate the relationship between users and the information they need. Without professionals, with a creative spirit, capable of implementing and developing new information technologies in the library, it is impossible to set up a library of the future, to satisfy users' expectations and needs for faster and easier access to relevant information.

We thank all the authors and supporters of this edition for participation and dedication, thus accepting the sharing of ideas and results regarding the support and promotion of the changing role of the university libraries in the digital information age. The example provided by the partnership of our project will serve to encourage other research centers in the Republic of Moldova to develop modern information services for citizens. We will continue to identify the problems faced by the university libraries and will outline new strategic directions and objectives for strengthening the role of these institutions in the development of academic education and research.

Editors

SUSTAINABLE DEVELOPMENT OF INFORMATION SERVICES FOR THE ACADEMIC ENVIRONMENT

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Silvia GHINCULOV

Introduction. The current stage is characterized by the intensification of information exchange due to the development of collaboration and cooperation in educational systems. The university libraries of the Republic of Moldova through its activities are flexible and connected to the evolution trends manifested worldwide, offering information services and products intended for users at the level of international standards, contributing to the improvement of the quality of higher education.

The university libraries being an important segment in the education system carry out ambitious projects in which they develop functional partnerships [1]. The key factor in the success of the entire development of libraries now is the creation and innovation made in the network. Stimulating the creative spirit and developing professional skills in university libraries is achieved by participating in projects through which new information technologies are implemented.

The partnership realized in the project "Modernization of academic library services in Moldova" during the period 2016-2019 was financially supported by the Norwegian Cooperation Programme in Higher Education with Eurasia, coordinated by the University of Bergen Library and the Scientific Library of ASEM. The main purpose of this project was to modernize the information services of 18 university libraries in our country by developing institutional capacity, developing professional competences, studying and implementing innovations in the service of users, increasing information consumption for the benefit of university education and research processes [2].

The experts who evaluated the project mentioned that *"…the project has the potential of lifting the entire library sector in the country. The way the seminars are structured is very convincing and the seminars*

seem to be important in order for the partners to be able to participate in international research. The Royal Norwegian Embassy in Bucharest is positive to the proposed project, and believes that it will be a valuable and useful project for Moldova".

The University of Bergen together with the Transylvania University of Brasov has become main strategic partners of the library network in the Republic of Moldova and our lawyers in relations with various information institutions in Europe. The support that our partners have provided in all aspects of library development, guarantees our libraries the chance to become truly European.

The directions of activity within the partnership. Within the project activities were carried out in four directions of activity, which helped us to find effective ways to meet the information requirements of the academic and scientific community in Moldova.

The first direction ensured the training of the librarians by organizing the workshops, the theme being established based on the survey conducted with the university librarians in 2015 (Landoy 2016):

• *Professional workshop nr.1* "International trends in academic library leadership" supported by Andrew McDonald, IFLA Governing Board Member, Emeritus Professor University of East London, Chief Executive Officer Libraries and International Information, London, United Kingdom (April 15, 2016).

• *Professional workshop nr.2* "Advocacy. Marketing: promoting the image of the university libraries". The workshop program included 3 modules: *Marketing for Libraries,* trainer Angela REPANOVICI, PhD. Prof. Transylvania University of Brasov, Romania; *Media campaign to promote libraries,* trainer Nelly ȚURCAN, PhD. Prof., Moldova State University; *Policy, advocacy for libraries,* trainer Manolis KOUKOURAKIS, PhD., Director of Library & Information Center, University of Crete, Greece. (13-14 June 2016).

• *Professional workshop nr.3* "Open Access and Institutional Repositories", supported by Angela REPANOVICI and Irene EIKEFJORD, University of Bergen Library. Within the workshop were discussed the planning of activities for the International Open Access Week 2016. In this context, in the institutional programs were included participation in the Marathon of archiving publications in the institutional repositories and the Open Resources Day (September 19-20, 2016).

• *Professional workshop nr.4* "Information Literacy", supported by Angela REPANOVICI and Ane LANDØY, University of Bergen Library,

Norway, Serap KURBANOGLU, prof., dr., Hacettepe University, Ankara, Turkey (February 7-8, 2017).

• *Professional workshop nr.5* "Bibliometrics/Scientometrics" was organized at the University of Bergen. The workshop program included the experiences presented by Dr. Susanne MIKKI "Bibliometrics at UiB. A library perspective"; Prof., dr. Angela REPANOVICI "Scientometrics on track"; Ingrid CUTLER, Advisor, Section for digital systems and services of the Bergen University Library "Open Access and Institutional Repositories"; Karin C. RYDVING, Section head Digital Systems and Services of the Bergen University Library "Library's involvement with research support". (May 11, 2017).

• *Professional workshop nr.6* "Accelerate Research Discovery with Web of Science", facilitated by the Clarivate Analytics. Facilitators: Marko ZOVKO, Account Manager, South and Eastern Europe, Scientific & Academic Research and Adriana FILIP, Solutions Consultant (January 12, 2018).

• *Professional workshop nr.7* "Attracting the academic community: Assessing and replying to the user needs". The issues regarding the increase of the visibility and image of the library in the academic community and the methods of evaluating the needs of the library users were discussed. The training action was supported by Angela REPANOVICI and Ane LANDØY (January 29, 2018).

• *Professional workshop nr.8* "Managing research data", trainers - Ane LANDØY, Angela REPANOVICI and Igor COJOCARU, PhD, Director of the Information Society Development Institute (IDSI). Issues related to research data management, data reuse, activity of research centers and warehouses were discussed (April 24, 2018).

• *Professional workshop nr.9* "Marketing and Advocacy II: best practices". Within the workshop have been disseminated the best practices implemented in the university libraries that promote our results in the academic area. Experts evaluated the online products for information and education of users, developed by all 18 university libraries in the Republic of Moldova (October 8, 2018).

The second direction of the project - the summer schools, which were three in number and all took place in Romania.

The first Summer School "Open Access and Open Sources for Librarians" took place between July 3-10, 2016 at the University of Brasov, Romania, Faculty of Product Design and Environment. In the Summer School participated 29 representatives from 20 institutions

from the Republic of Moldova and Romania. Among the trainers of this school were: Angela REPANOVICI; Nelly TURCAN; Dinu COVACIU, dr. University of Transylvania, Brasov, Romania; Mioara VONCILĂ, Director, Library of the University of Galați, Romania; Nicolae CONSTANTINESCU, Kosson Community, Romania.

The second Summer School "Information Literacy" took place on June 25-30, 2017 in Tulcea, Romania, with the participation of 27 librarians from Moldova. Among the trainers of this school were: Angela REPANOVICI, Ane LANDOY, Nelly ȚURCAN, Serap KURBANOGLU, prof., PhD, Hacettepe University, Ankara, Turkey, Robert CORAVU, PhD, University of Bucharest, Romania, Sanda ERDELEZ, prof. PhD, University of Missouri, USA.

The third summer school "The references librarian in the digital age" took place on June 24-29, 2018, in Mamaia, Romania, where 31 librarians from Moldova participated. Among the trainers of this school were: Angela REPANOVICI; Manolis KOUKOURAKIS; Ane LANDOY; Ismail SERAGELDIN, PhD, director of the Library of Alexandria and director of the Executive Council of the World Digital Library, Alexandria, Egypt; Jesus LAU, PhD, Veracruzana University, Mexico; Anna CHULYAN, PhD, director of the Library of the State University of Languages and Social Sciences Brusov, Yerevan, Armenia.

During the three editions, the Summer School within the Project was the place where librarians learned useful things, which, summed up in the words "new experiences", could be applied in the partner institutions and in the projects they will continue to initiate.

The third direction of the project was the strategic planning in the university libraries. In order to facilitate the elaboration of the strategies, the Public Association Pro Community Center was engaged, which carried out the functional analysis and the institutional capacity assessment of the libraries in the project. The training included 4 workshops where strategic products for our libraries were developed.

With the help of the Pro Community Center, a quantitative sociological research was also carried out, which determined the tendencies of developing the university libraries in the long term. The findings of the sociological study were reflected in the strategic directions and in the foundation of the strategies of development of the university libraries of the Republic of Moldova (Mîndru 2017). Almost all the partner libraries of the project have approved the strategies in the universities' Senate.

The fourth direction was the organization of the access to the scientific databases by subscribing the libraries participating in the project to important resources for academic research. During this period was ensured access to international databases: Cambridge Journals Online; Taylor & Francis Online Journal Library; Web of Science; SAGE Research Methods.

Study visit to the University of Bergen, Norway took place from 9 to 12 May 2017 and was attended by 35 representatives of 18 universities from Moldova (rectors, vice-rectors and directors of libraries). We had various meetings, library visits, a seminar and a round table. There was also a soul meeting with the rector of the University of Bergen Dag Rune OLSEN, professor of biomedical physics. The discussion was focused on the topic „Research Challenges in Norway and Republic of Moldova: How can the library support research?". Bård HEKLAND, Adviser, Department of Higher Education of the Norwegian Centre for International Cooperation in Education (SIU) also participated at the discussion. On behalf of the delegation from the Republic of Moldova spoke prof., dr. hab. Larisa ŞAVGA, Rector of Trade Co-operative University of Moldova (UCCM); prof., dr. hab. Larisa BUGAIAN, Vice Rector on Financial Problems and International Relations, Technical University of Moldova; Olga TAGADIUC, dr. hab., associate professor, Director of the Doctoral School, State University of Medicine and Pharmacy "Nicolae Testemitanu". From the library community had speeches the coordinators of the project Ane LANDØY and dr. Silvia GHINCULOV.

During the visit we noted the importance of new technologies and structural changes, which are currently taking place in university libraries in Norway. These works include the interior design of the library, the efficient organization of the reading and storage spaces, increased attention to the comfort of the users, etc.

From the first year of the implementation of the project we have "acquired" another loyal partner in the person of Mr. Igor COJOCARU, PhD, director of the Institute of Information Society Development. All our training actions have been transmitted online by IDSI. The video recordings are archived on the project website and on the IDSI TV channel on Youtube. The internal communication and dissemination of information was made on the project site, which contains all the necessary information about the carried out activities.

Throughout the project period, 9 workshops, 3 summer schools, a study visit to the University of Bergen, 5 meetings of the Club "Norway

– The Land of Fjords", participation in 11 international conferences at which the results of the project were disseminated, were published over 100 articles (including in ISI journals), were conducted 4 sociological studies, were carried out 18 strategies of development of university libraries, 18 programs of library promotion, 18 online tutorials for users and others etc.

The National Marathon of archiving of publications in Institutional Repositories and Database Day were organized during the International Open Access Week. We also had a contest regarding the Project logo, which ensured the unitary visual identity of the partnership and was used on all project materials, on different communication channels by all the 21 institutions participating in the project. The winners of the contests organized within the project received certificates of participation in the Summer School.

Conclusions. Libraries in the Republic of Moldova face many challenges, but also many opportunities. One of our indisputable achievements is that we have taken important steps towards integrating our information resources into the international circuit. We have publications registered in collective catalogs, magazines registered in international databases, we use common platforms and we feel comfortable in the virtual space of electronic education.

The society currently needs a university education system that prepares young people to participate as an active and productive labor force in a dynamic labor market and as responsible citizens in an open, democratic society. In this context, the activity of a university library is focused on the accomplishment of the most important mission - the informational and documentary assurance of the study and research processes.

Within our project we have accomplished important and useful things that will help us to find effective ways to meet the information requirements of the academic and scientific community in Moldova. Our relationships with partners in Norway, Romania and other countries have been strengthened in our projects, they have shown that we have the same values, the same visions, brought us closer to cultures and traditions and created special spiritual connections between people.

The results of these collaborations will be a strategic framework for the sustainable development of the national policies regarding access to information throughout the Higher Education System of the Republic of Moldova.

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IMPORTANT TRENDS IN INTERNATIONAL ACADEMIC LIBRARY DEVELOPMENT: COLLABORATION

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Ane LANDØY

Introduction. Given the ever-changing landscape of higher education, it is necessary to consider the ongoing role and relevance of academic libraries. Globally, academic libraries have developed new resources and services addressing the evolving needs and expectations of library users, due to changes in technology, paradigm shifts in research, and developments in scholarly communication, data management and pedagogy within the higher education arena.

The libraries also have to balance the need to offer new facilities, while continuing to provide their core services, and anticipating future user needs related to new technologies, growing data sets and further paradigm shifts in learning, teaching and research. Michalak (2012) pointed out that some of the factors driving these changes arise from networked technologies with powerful search engines. The networked technologies are available to all, as well as social technologies and the digitisation of almost every piece of information. Collaborative relationships between academic and research libraries are needed, at national, regional or international levels.

The digital age, with the advantages in access, preservation and transfer of information, has also greatly increased the range of collaborative opportunities for libraries. Cooperation provides great opportunities to improve the offer of products and services for users and to expand the role that can be played by libraries. Cooperation is currently a critical strategic issue for libraries, supported by technological developments and by the openness of information professionals. (Magde 2018:625)

Extraordinary state funding, and pragmatic librarians who are transforming their workplaces from lumbering and old-fashioned facilities into agile, change-oriented units ready to respond to whatever the future holds

will be necessary. Budgetary constraints, rapid advances in technology, and demands that libraries continue to demonstrate their value have also played a role in the development of academic libraries. Raju (2014) highlighted the forces for change in academic institutions, and their impact on the relationship between universities and academic libraries. Specifically, new methods of scholarly communication, the expansion of the libraries' virtual space via knowledge portals or research commons, the proliferation of social media, and the explosive growth of mobile devices, such as tablets and related applications, have collectively altered traditional academic libraries beyond recognition. These changes have obviously also had a significant impact on the knowledge and skills requirements of library and information-science professionals, as stated by Musoke and Landoy (2016:137)

Libraries' traditional services (such as building collections and supporting teaching, learning, research and dissemination) have becoming increasingly digitised. However, technological changes have also created new tasks and roles for academic librarians. Fortunately, new technologies are opening up huge opportunities for academic libraries to support learning, teaching and research. Radical new forms of collaboration between libraries at different institutions are also emerging. (Musoke and Landoy 2016:138)

Saunders (2015) pointed out that the need for change raises concerns for academic libraries around the world, and emphasises the importance of collaboration between libraries. Areas of knowledge and expertise in different libraries can be exploited when such institutions work together, and solutions may be found by transferring knowledge and by joint efforts. Worldwide, collaborations range from establishing consortia for the purchase of resources and joint storage of less-used collections, to setting up common portals and joint repositories.

The theme of collaboration implies strategic knowledge sharing and development, and this fits well with shifts in library and information services in the present area. The term 'collaboration' is often used interchangeably with the term "partnership". However, there is a difference between the two. Carnwell and Carson (2009) pointed out that a partnership refers to 'what something is' while collaboration describes 'something that is done'. Partnerships imply an equal commitment, accompanied by shared risks and benefits, and focus on a specific problem or outcome. They may be political, charitable or ideological relationships in which power is shared. Sometimes the focus of a partnership is strong enough for the boundaries between partners to fade and blur in deference to the overarching importance of shared goals. Collaborations share many

of these characteristics, but collaborators contribute their expertise to the degree that is needed to solve a problem with no expectation of reciprocity. Collaborations can, therefore, be considered to be more project- or goal-focused, and when the goal is achieved and/or the project is implemented, collaboration may cease. (Musoke and Landoy 2016:139)

Brief background for our collaboration projects

The joint collaboration projects between the Scientific library of the Academy of Economic Sciences of Moldova (ASEM) and University of Bergen Library (UiB) started in 2010, when the then Norwegian Centre for internationalisation of Education awarded us a "seed-money"-grant to go to visit each other. Following these visits, we applied for a project in 2011, and it was granted (2011-2015). In this and the following project, we had a Romanian expert, professor Angela Repanovici from Transilvania University of Brasov.

The project from 2011 was called «Library development in Moldova", and was based on the idea that a modern library is a centre of strategic importance, a real support for teaching, research and continuing education. The library has the vital role of interface between the user and information, and will develop as a modern organization, combining traditional services with electronic.

In the project, quality of service was seen as users requiring a thorough orientation to the user. There is a considerable need for assistance in training, education and information for users and librarians. The project introduced a new integrated automated library system, and information literacy training. International cooperation has a decisive impact on library development. The project addressed the development needs of the AESM Library and was to provide the basis for concrete plans of activity in the following three years.

Among the objectives and activities in this project, we find

Library modernization as the basis for development of university libraries.

Training highly skilled specialists in the library to European educational standards.

Developing Information Literacy skill of teachers, scientists and students.

Introduction the course "Information Literacy" for all segments of library users

Creation of tutorial materials for "Information Literacy"

- Creation of economic digital library

- Initiate creation of Institutional Repositories and associated products in the library (IR).

- Making the library web site into a virtual library of interaction with users

- Expanding the use of the Internet and other media in the activity of reading rooms

- Organizing the Information desk on-line in all reading rooms.

During this project, all academic libraries in Republic of Moldova was invited to participate in activities, and as a result of this widening collaboration, we were awarded seed money again in 2014, to develop an application for the next major funding period. This was done in collaboration with all 18 academic libraries in Moldova, and the Institute for developing society. The next application was also successful, and from 2016 to 2019 we have had 9 workshops, 3 summer schools, a multitude of dissemination activities and conference participations with papers and/or posters. We have purchased some laptops, access to electronic journals and Web of Science. The library directors brought members of their rectorate to Bergen in May 2017, to show them how academic libraries in Norway work, and this has led to other local events in Moldova.

How has collaboration affected the projects?

The library development-projects that the Scientific library of the Academy of Economic Sciences of Moldova (ASEM) and University of Bergen Library (UiB) have developed and conducted have heavily depended on collaboration between the partners. With the exemption of the Romanian expert, there has not been funding for salaries to external consultants and a small sum for covering extra work loads as a result of project administration, and the work with developing a good website for the project. This means that the project partners have needed to provide a good part of the capacity building themselves. In the workshops there had been funding for international experts, and some of these experts have been external (as in not employed by UiB), but for a large part the trainers in workshops and summer school have been from the project partners, and the Romanian expert.

Collaboration in conducting the 12 workshops has included the development of training content and sharing of the actual teachings with our colleagues from ASEM. We have also been involved in analysing the results of the surveys sent out after the workshops, where the participating library leaders from the Moldovan academic libraries have given their feed-back and assessments of the trainings received.

For UiB, this has been beneficial. We have gained experience in teaching and training in another environment than our own. We have learned how to design trainings to colleagues from other countries, and to deliver them away from our own university. We have been exposed to new and innovative ways of evaluating the impact of our training. We have also learned about hard work in development of academic libraries.

The actual work of running the workshops has also been a joint effort, where ASEM naturally has had the most to say in both picking the issues for training, and planning the practicalities. UiB has learned about logistics, coffee breaks and the best order of events. This is useful knowledge also in training sessions at our own university.

The project team and the participants have disseminated the project widely, both in own institutions, to a wider audience in the Republic of Moldova, and internationally at library conferences such as QQML, ECIL and IFLA WLIC. For the Bergen project leader, this has given an opportunity to improve her skills in performing and presenting. In the international conferences, the dissemination of the project has been coupled with actual research, either on the situation for the academic libraries in Moldova, or the library leaders. This dissemination of joint research in internationally renowned academic journals is beneficial for UiB, as well as for the project leader personally.

Apart from the academic library development trainings and project dissemination, there have been joint efforts in project management. The normal procedure for all the projects funded by SiU/DIKU is that the project leader in Norway starts writing the project application, with input from the project team in Moldova. Reporting, including financial reporting, is also the responsibility for the Norwegian partner, again in collaboration with the Moldova partners.

In the case of the last project, which included all 18 academic libraries in the Republic, and the Institute for development of society, ASEM was the "hub" and contact point between the Moldovan libraries and the project. The Norwegian project leader deled with ASEM only, concerning administrative matters. From UiB's point of view this worked well.

One of the first items on the first project meeting was getting acquainted with the financial department of ASEM, to make sure that transactions and financial reporting would go easily, speedily, and transparently. This was well invested time and effort, ensuring good collaboration between UiB and ASEM financial officers.

There is no use denying that there are, of historically and geographically reasons, huge managerial and administrative differences between Norway and the Republic of Moldova. Learning about them, and finding ways to negotiate them, without endangering the project has been an interesting exercise for the UiB project administrators; both eye-opening and humbling.

One example is the difference in levity from the parent institution to starting the allocation of funds. In Moldova, it is not possible to use any kind of funds before the money has actually been transferred into the project account in the library, while the UiB administration will allow money to be spent as soon as an official letter of acceptance is received. Fortunately for the project, this also means that the transfer of funds to Moldova can take place even before the allocation from SIU/DIKU arrives in UiB.

Results of projects in Bergen

So, what are the tangible results of the projects in Bergen?

There has been a lot of learning and capacity building, as mentioned earlier. We have had to develop and learn about what we were going to teach the project participants. We have also learned from the other international experts, and from the Moldovan academic librarians themselves.

Another tangible result is the research that has been conducted and disseminated in this project, in a wide field of library investigations. The list of joint posters, papers and presentations from the project leaders contains more than ten papers presented at the most important library conferences, ECIL (European Conference on Information Literacy), QQML (Quantitative and Qualitative Methods in Libraries), IFLA/WLIC (the annual international library conference), as well as the Annual meeting of the Romanian Library Association (ABR).

Most of the papers have also been published (see https://newinformationservices.wordpress.com/publications/) for details of this, and of the innumerable contributions from all the project participants.

The project has also offered the possibility for participation in the major international conferences for presentation of papers, learning from other presentations, and building networks.

Conclusion. The project results for the academic libraries in the Republic of Moldova will be listed in another part of the book, and is therefore not a part of this chapter. It is also difficult to say what is a direct result of the project, and what would have happened in the Republic anyway. It is tempting to speculate, though, and at least list capacity building, electronic resources and equipment as direct achievements of

project participation. The fundamental contribution of the project, from my point of view, is that it has funded and facilitated joint meetings and network building between the Moldovan academic library leaders. From this have come trust, collaboration and new projects.

The results of the Moldova project collaborations at the University of Bergen Library has been listed in more detail in this chapter, and will therefore only be mentioned.

The results include development of trainings and running of workshops, which has provided us with new skills. We have also learned about project management, and cultural and practical differences in the administration of projects. We have developed research skills and dissemination capacity.

So, through collaboration and participation in the project, learning and capacity building has been supported.

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HOW WE KEEP UP WITH THE DYNAMICS OF CHANGING INFORMATION NEEDS IN THE SOCIETY BASED ON TECHNOLOGY AND KNOWLEDGE?

UDC 023.5:027.7(478)

Angela REPANOVICI

Introduction. The information culture must keep pace with the development of society, information technologies and the publication models that maximize the dissemination of information.

Different information needs always appear depending on the professional activity, training activity, relaxation or medical, social needs.

Methods for training librarians used in the project "Modernization of academic library services in Moldova". The project "Modernization of academic library services in Moldova", Project number CPEA-2015/10014. Project period: 2016-2019, was dedicated to the modernization of libraries by developing services and training librarians. Within the project, various methods of training librarians were used, through workshops or through a summer school dedicated to this topic. (Project, 2019)

The training of librarians was done through different methods: workshops, summer schools, participation in conferences. We make a short presentation of events:

- Information Literacy Workshop, (February 7-8, 2017, Chisinau, Moldova)

The presentation of „*Information Literacy needed skills*" aimed at presenting databases, evaluating scientific information, tools used to detect plagiarism, the role of libraries in integrating graduates into the labour market with the necessary information skills at new jobs.

- The fifth workshop. „Bibliometrics / Scientometrics", (May 11, 2017, Chisinau, Moldova)

In the presentation of Scientometrics on track, there were presented historical elements regarding the necessity of the appearance of bibiometrics, the development of scientometrics methods, scientometrics indicators and their use in scientific evaluation, the benefits of bibliometrics.

- Summer School of Information Literacy (June 25-30, 2017, Tulcea, Romania).

Presentations: *The Need for Skills in the Information Literacy* and *Pedagogical Aspects in Teaching Information Literacy* contained novel elements regarding the involvement of librarians in the training of entrepreneurs, the creation of intellectual property information, how to patent an invention, information needs in the workplace. Regarding the pedagogical methods were presented the elements of didactic design, the stages of beginning of a training session, the didactic methodology and the evaluation of the session.

Scientometric methods for identifying new research directions in Information Literacy. Scientometric methods can analyze large bibliometric databases and offer visualization and mapping of a scientific field regarding the most active authors, the most active institutions by publishing scientific articles in that field, scientometric visualization analysis.

- **Research methodology**

The results of the "Information Literacy" topic were searched in the Web of Science database. We obtained 4519 results, of which articles 2919, proceedings papers 1089, review 293, book chapter 307, book review 293. (Enformation, 2019).

The database was downloaded in segments of 500 documents, full record: abstract, title, references, in Tab Delimited-Win format tab.

Database loaded in VOS Viewer. VOSviewer is a software tool for constructing and visualizing bibliometric networks, which can be used to construct and visualize co-occurrence networks of important terms extracted from a body of scientific literature.

It was desired to perform the bibliographic coupling analysis using as a unit of analysis documents, sources, authors and visualization of the descriptors most often used to describe the domain.

The bibliographic analysis coupling according to documents, is based on 3516 documents, of which 3516 had at least one citation. 1000 documents with strong influence in the field were selected, co-citation map, based on documents were obtained.

A link is a connection or a relation between two items. Examples of links are bibliographic coupling links between publications, co-authorship links between researchers, and co-occurrence links between terms. A map normally includes only one type of link. Also, between any pair of items, there can be no more than one link. Each link has

a strength, represented by a positive numerical value. The higher this value, the stronger the link. The strength of a link may for example indicate the number of cited references two publications have in common (in the case of bibliographic coupling links), the number of publications two researchers have co-authored (in the case of co-authorship links), or the number of publications in which two terms occur together (in the case of cooccurrence links). Sometimes the links between items all have a strength of one. VOSviewer then does not show the strength of a link. Items and links together constitute a network. Hence, a network is a set of items together with the links between the items. (VOSviewer, 2019).

For the field of Information Culture, we want to see the authors with the greatest influence, we select in VOSviewer Authors, Co-authorship, the maximum number of authors we select at 10 (Fig.1).

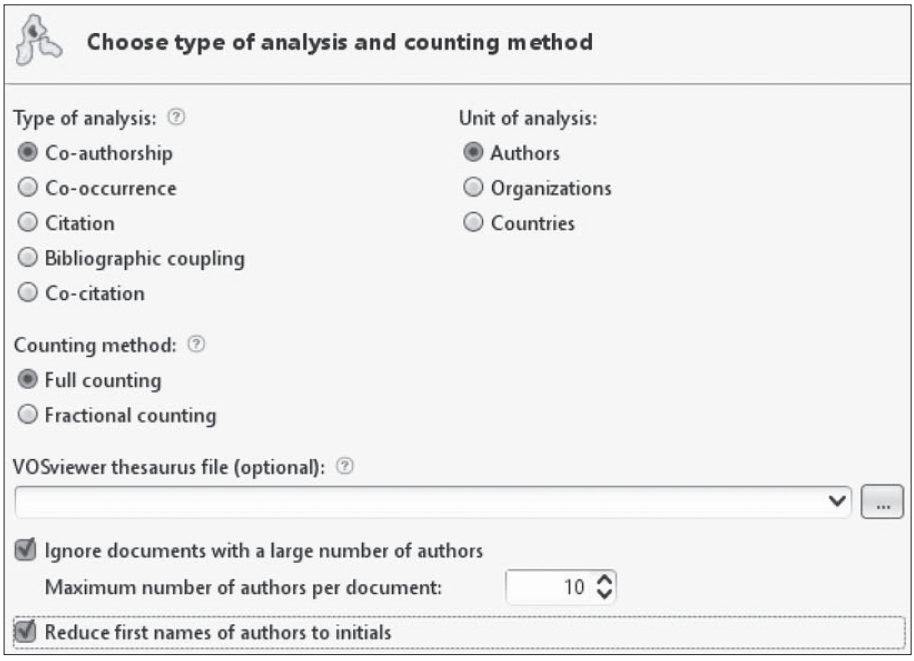


Fig. 1: Selection of authors analysis

We propose the analysis of authors with at least 2 indexed documents. Of the 5476 authors, 907 met the requirements (Fig.2). The number of the sectarian authors was 907.

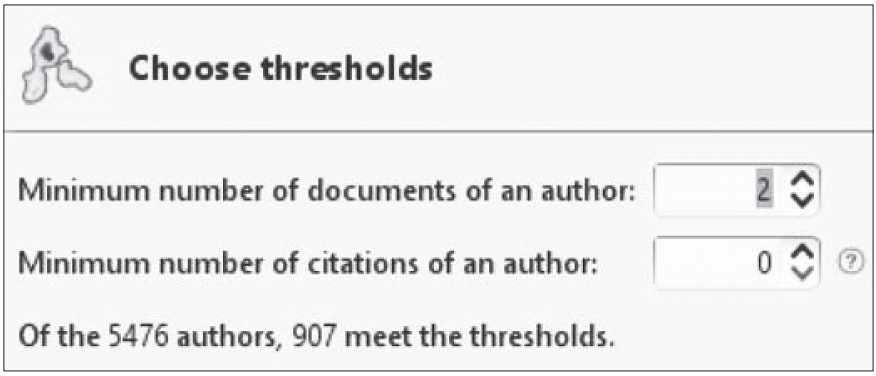


Fig. 2: Selecting requirements for authors

The 907 authors Pinto, M. published most articles - 45, has 10 citations, a strong link between the cited documents, the largest of 54 (Fig.3).

Verify selected authors

Selected	Author	Documents	Citations	Total link strength
☑	pinto, m	45	10	54
☑	fosmire, m	14	1	33
☑	purzer, s	8	1	29
☑	foo, s	10	3	26
☑	majid, s	10	3	26
☑	sales, d	15	5	23
☑	hirvonen, n	7	1	21
☑	mayer, ak	10	9	21
☑	krampen, g	8	9	20
☑	douglas, ka	5	1	19
☑	luyt, b	9	0	19
☑	bruce, c	18	0	18
☑	chang, yk	5	3	18
☑	huotari, ml	5	0	18
☑	wertz, reh	5	0	18
☑	fernandez-pascual, r	8	4	17
☑	korpelainen, r	4	0	17

Fig. 3: Selecting authors with most indexed documents, citations and links strengths

Pinto, M., Loyd, A., Maybee, C., Fosmire, M. are the authors with the greatest influence (Fig. 4).

They have started publishing since 2013 (Fig.5).

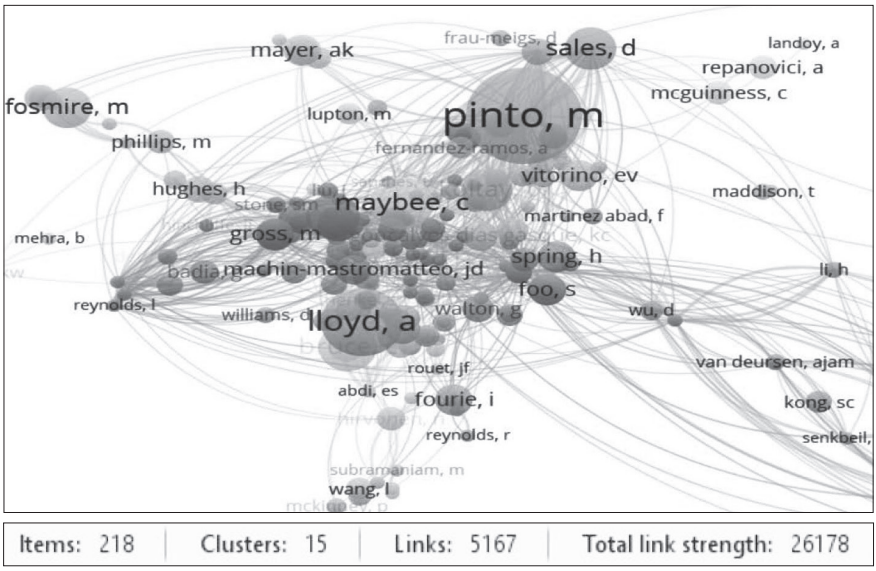


Fig. 4: Authors visualization

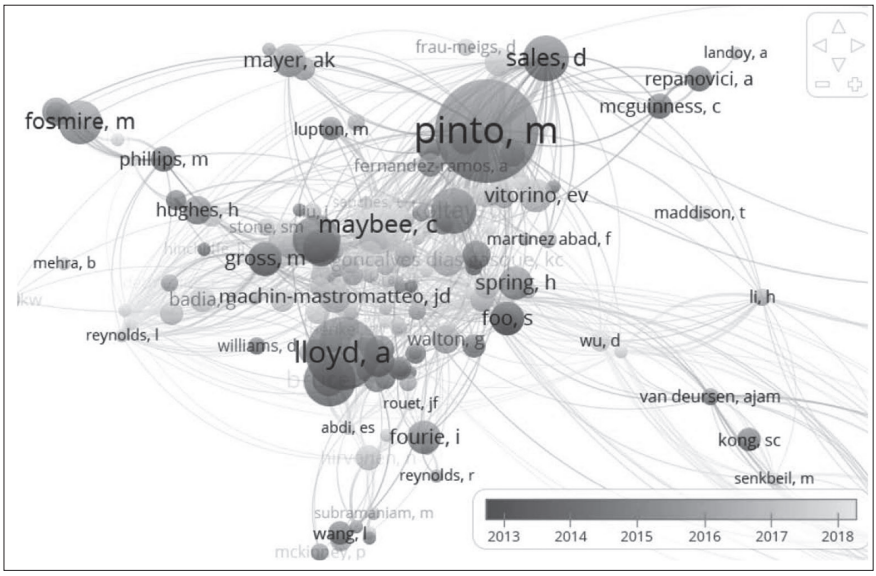


Fig.5: View of the authors taking into account the significant publication year

Repeating the procedure and selecting "Sources" we identify the most productive journals for the field (Fig. 6). *Journal of academic librarians* it is top.

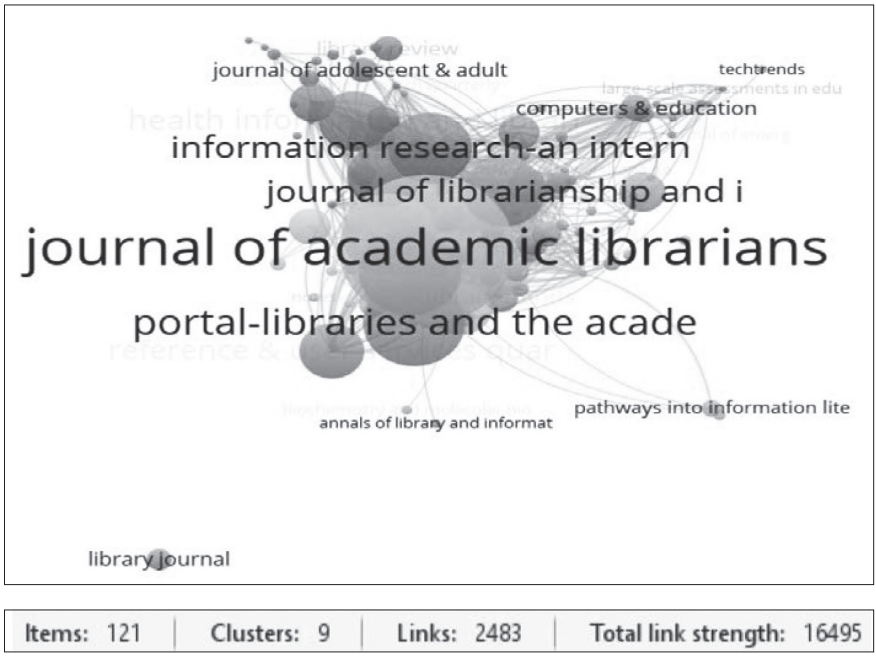


Fig. 6: The most important sources for the domain

From the terms selected by relevance, *everyday context* has the highest relevance (Fig. 7).

Verify selected terms

Selected	Term	Occurrences	Relevance
☑	everyday context	3	5.51
☑	everyday contexts	3	5.51
☑	information literacy landscapes inform...	4	5.51
☑	information society survival toolkit	3	5.13
☑	2nd edition	10	4.38
☑	teaching information literacy skill	3	3.56
☑	casebook	4	3.43
☑	educating college	3	3.03
☑	first year biology course	3	2.82
☑	radical information literacy	3	2.82
☑	political heart	3	2.82
☑	zoology	3	2.58
☑	practical aspect	3	2.31
☑	lifetime	3	2.24
☑	professional guideline	3	2.24
☑	open science	3	2.20
☑	breivik p	5	2.17

Fig. 7: Used descriptors classified by relevance

We identify new terms relevant to the field: information literacy landscape information, information society survival toolkit, radical information literacy, political heart, open science.

Analysing visualization map of descriptors used in title and abstract (Fig.8) we identify 26 clusters, but the most used descriptor is methodology approach.

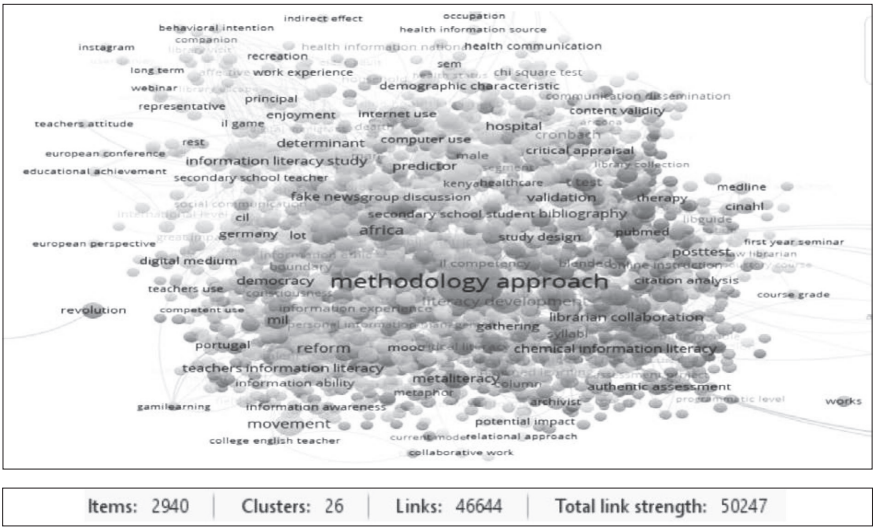


Fig. 8: Visualization map of descriptors

Conclusions. *Information literacy* is update all time with the transformations of society. New research directions open, new descriptors characterize the field: information ability, chemical information literacy, citation analyse, librarian collaboration, fake news, work experience, game, information awareness, teachers' attitude, content validity.

Journal for academic librarian, is most used source, this shows library profession have the most expertise in the field.

The most active authors are Library Science professors, they keep research about Information Literacy in top.

Also, Information Literacy, become *information society survival toolkit* and *everyday context.*

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THE ROLE OF LIBRARIES İN PRESERVATION OF CULTURAL HERITAGE

UDC [02+008]:004.78

Serap KURBANOGLU

Introduction. Cultural heritage is the aspects of the past that humankind wants to pass on to future generations (Ekwelem, Okafor & Ukwoma, 2011). It is the memory of people's living culture which is expressed in different forms (Arnold & Gezer, 2008). The 21st century has witnessed changes across the *cultural heritage* sector. There has been a proliferation in the use of *cultural heritage* concept which has been evolving during the last couple of decades.

The definition of the concept has been expanded from an approach referring exclusively to tangible assets to an approach that also includes intangible and digital assets. Whether tangible, intangible or digital, assuring the safeguard of the world's heritage is important.

Efforts to preserve cultural heritage have started long ago and gained momentum throughout the world since the year 2002 is proclaimed as the *Year for Cultural Heritage* by the United Nations (UN)[1]. However, cultural heritage is still threatened with destruction and its protection often remains incomplete because of the scale of the resources it requires (UNESCO, 1972).

Cultural heritage has became an important theme during the last couple of decades. International organisations, national policy making bodies, and professionals from various disciplines especially from memory institutions[2] have put a tremendous effort into not only preserving but also making cultural heritage resources publicly available. Libraries, archives

[1] About one and a half decade later, the year 2018 was announced as the *European Year of Cultural Heritage* by European Union (EU) (https://www.europanostra.org/our-work/policy/european-year-cultural-heritage/).

[2] In this paper, terms such as memory institutions, cultural institutions, heritage institutions, cultural heritage institutions and LAM are used interchangeably to refer particularly archives, museums and libraries.

and museums, in particular, are committing increasing amounts of time and money for safeguarding the heritage resources in their collections (UNESCO, 2003b).

Definition and evolution of the concept

Culture is the collection of a society's beliefs, customs, arts, language, and values. Every society has a culture which generally produces similar behaviour and way of thinking among people who live in that society. Cultural heritage, therefore, is people's way of life (behaviours, ideas, acts and artifacts) which is passed on from one generation to another (Ekwelem, Okafor & Ukwoma, 2011).

The main feature of the *cultural heritage* is indicated as "outstanding universal value from the point of view of history, art or science". Following assets are considered as *cultural heritage* by UNESCO when a convention for the protection of the world cultural and natural heritage was organized in 1972: monuments, architectural works, sculptures, paintings, inscriptions, cave dwellings, sites (man-made, natural or archaeological) (UNESCO, 1972).

It took couple of extra decades to include intangible heritage as part of the *cultural heritage.* The *intangible cultural heritage,* defined by UNESCO (2003b), as "the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated there with – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage". Tango from Argentina, acupuncture from China, falconry, yoga, marimba music, the Mediterranean diet, and flamenco are given as examples for intangible heritage (DeSouceya, Elliottb, & Schmutz, in press).

Tangible cultural heritage has the advantage over its intangible counterpart, such that with proper care (even in a neglected state) it remains authentic over centuries. On the other hand, survival of intangible cultural heritage is always threatened because a great deal of it is passed on only orally through generations (Sekler, 2001 as cited in Ekwelem, Okafor & Ukwoma, 2011).

Additional to the tangible and intangible heritage, today we are also speaking about *digital heritage.* UNESCO (2003a), recognizes that "resources of information and creative expression are increasingly produced, distributed, accessed and maintained in digital form, creating a new legacy – the digital heritage". The digital heritage consists of resources/information not only created digitally (born-digital) but also converted into digital form from existing analogue resources. In addition to cultural resources,

digital heritage includes scientific, technical, educational, legal, medical, administrative and other kinds of resources which are on various formats such as texts, audio, still and moving images, graphics, software and web pages. "Many of these resources have lasting value and significance, and therefore constitute a heritage that should be protected and preserved for current and future generations" (UNESCO, 2003a).

The concept of cultural heritage is constantly evolving. As Loulanski (2006) pointed out "the conceptual focus of cultural heritage has shifted alongside three interrelated and complementary directions: 1) from monuments to people; 2) from objects to functions; and thus 3) from preservation per se to purposeful preservation, sustainable use, and development".

Today, many professions (with the diversity in their understanding) representing different stakeholders from different sectors are working to preserve inherited cultural heritage assets (tangible, intangible, digital) (Loulanski, 2006). This complexity and diversity cause some challenges for the collaborative works required for the management of cultural heritage (Hirsenberger, Ranogajec, Vucetic, Lalic & Gracanin, 2018). Therefore, a better understanding of the complex nature of the content is needed to be achieved.

The value and importance of cultural heritage

The value and importance of cultural heritage has long been accepted. The heritage value of an asset lies in its cultural significance, which usually is based on its historical, symbolic, spiritual, aesthetic and social aspects. Heritage value is the major reason behind the conservation and preservation endeavors and the basis for its economic and social benefits and impacts. While historical value is based on the historical content which provides connection with the past; symbolic value is based on the symbolic meaning and power of certain assets on people's cultural identity. A cultural asset may promote insights in the meaning of religious, sacred and transcendental practices and that constitutes spiritual value. Aesthetic value comes from the aesthetic quality of the cultural asset which is an important element for its enjoyment and may inspire new artistic creativity. Social value is based on the potential of the asset to help promoting local values and social cohesion by facilitating connection with others and the shared social experience. Because of this multitude of values, cultural heritage assets can enhance the cultural and social capital and community welfare in a number of ways (Arnold & Gezer, 2008).

The total economic impact of cultural heritage comprises direct and indirect economic effects. As Tonta (2016) argues, cultural heritage

has an indirect effect on economy, by stimulating tourism development (promoting cultural tourism), hospitality sectors and the emergence of new trades and activities, as well as a direct effect by creating employment opportunities and providing income. Assessment of the total economic value of a heritage asset (place, building or object) requires to take into account both direct and indirect effects. According to Arnold and Gezer (2008), while direct values of a heritage asset can be captured comparatively easily, indirect values are difficult to evaluate.

Culture is considered as one of the four pillars of sustainable development along with economy, society and environment. When properly managed, cultural heritage can be instrumental in enhancing social inclusion, stimulating and supporting intercultural dialog, shaping the identity of a territory, improving the quality of the environment, and nourishing social cohesion, as well as sense of self and belonging (Aparac-Jelušić, 2017).

Digitization of cultural heritage

Tangible cultural assets decay, intangible assets might get forgotten and digital ones might become obsolete as time passes. Thus, safeguarding the cultural heritage, tangible, intangible and digital, is crucial. Digitization plays a notable role in safeguarding tangible and intangible cultural heritage. The digitization of cultural heritage refers to the interdisciplinary domain that encompasses management of cultural heritage in the digital environment (Manžuch, Huvila & Aparac-Jelušić, 2005).

Digital cultural content helps to capture cultural memory and preserve it for future generations. Various creative expressions and resources of information are increasingly produced, distributed, accessed, and maintained in digital form (Cameron & Kenderdine, 2007). In regard to preservation of cultural heritage, constantly increasing amount of content is one of the biggest challenges faced by cultural heritage institutions (Clark et al, 2002). Another challenge appeared in digital era is about the relatively short life of most digital objects due to the media they are recorded on and the software that runs that media. Both the media and the software are under the risk of becoming obsolete when time passes and that makes information inaccessible (Rothenberg, 1995).

Cultural memory is mediated by designated institutions, primarily LAM (Libraries, Archives and Museums) institutions, which selected, collected, processed, and presented what was percieved and interpreted by these institutions as valuable assets worth preserving. However, there are also some differences among these institutions regarding the challenges they face. For instance, digitization poses more challenges for

museums than it does for libraries and archives. First of all, museums collect 2D and 3D objects (while libraries preserve primarily the printed and graphic materials) digitization and distribution of which is challenging since it requires more storage space, special software and high bandwidth to view. Secondly, heritage materials preserved by museums (and generally in archives) are unique, while library materials usually (though not always) have more copies kept in different libraries (Hemminger, Bolas & Schiff, 2005; Tonta, 2008). Moreover, museums host temporary exhibitions (not only objects) which may never be displayed again and have a value on its own to be preserved (Tonta, 2008).

Preserving born-digital cultural heritage resources is also a challenge. Challenges for the digitization of analogue materials (such as legal, financial, organizational and technical issues) are also valid for the preservation of digital materials. There are also some additional questions and concerns. For instance, whether it is possible or worthwhile to preserve all born-digital data (taking into account its proliferation), who decides what to preserve and who is responsible from preservation and in what way? Another problem is the dynamic and intelligent nature of born-digital objects (such as web pages), which requires more sophisticated preservation methods to accommodate changes introduced at a later stage to these objects. Additionally, the cost of long-term preservation of digital information is not very clear (European Commission, 2005).

Several methods have been suggested to deal with the preservation of digital information, such as copying or migrating contents of the old media onto newer ones and making multiple copies and making them available on the distributed network. It is still not known which method is the best for the long-term preservation of digital information (Tonta, 2008). One thing is clear that, unless satisfactory methods to solve the problem regarding long-term preservation of digital information is developed, the loss of precious digital information and digital cultural heritage will continue.

In order to preserve digital heritage, measures are needed to be taken throughout the digital information life cycle, from creation to access. Long-term preservation begins with the design of reliable systems and procedures to produce authentic and stable digital objects. The level of urgency, local circumstances, available means and future projections should be taken into account when strategies and policies to preserve digital heritage are developed. Selection decisions should be based on pre-defined principles, policies, procedures and standards. Legal frameworks

are required to secure the protection of the digital heritage. Legal and technical frameworks for authenticity are crucial to prevent manipulation or intentional alteration (UNESCO, 2003a).

Digitisation is not only about making digital copies. Success of digitisation depends on several factors: Interoperability, creation of quality metadata, managing intellectual property rights, accessibility, usability, promotion, user satisfaction etc.

In an environment the variety of systems and applications are constantly increasing, interoperability makes it possible to re-use digital content and increase its visibility. It is essential to clear the intellectual property rights before digitisation and also make sure that what is in public domain remains in public domain after the digitisation. It is also important to present information on the status of the intellectual rights to make users be aware of any restriction on the use of the resource. Releasing digital cultural information as open as well as linked data (within the framework of existing legislation) provides not only economic benefits but also make it possible to be directly queried by any application regardless of programming language or technology. The promotion of digital cultural content is necessary to raise awareness and should be carried out through social media (which is more effective in reaching crowds) as well as traditional online tools (portals and websites). However, it should be taken into account that online communication especially social networks require constant attention. Additionally, information of interest to users, on websites and portals, must be visible, up-to-date, and easily located. All digital products must be designed and created by taking into account users' skill levels, needs, requirements, information behaviours, as well as the usability requirements to ensure accessibility. Making cultural heritage resources appealing to visitors requires cooperation with all relevant public and private stakeholders at the local, regional, national, and international levels (MiBACT, 2014). Consistent metadata makes it easy to explore the content, helps to reveal connections between items and improves exposure to external search engines. Providing the metadata, navigation, and supporting content (e.g., curator videos) in widely spoken languages (at least in English, if the native language is different) brings digital library closer to the goal of being universal (Nabi, 2012). Using products made with innovative technologies such as

digital storytelling and transmedia storytelling[3] makes cultural heritage assets more accessible and engaging (MiBACT, 2014).

The iBeacon project can be shown as an example for the use of digital storytelling. It is developed by two libraries in Hamilton, Canada as a part of a larger digital storytelling initiative (http://www.hamiltonstories.ca/) and involved the capture and distribution of digital stories about Hamilton. The iBeacon app which is based on proximity-based technologies is used to promote interest in the city and greater appreciation for its cultural heritage. If users install the app on their smartphones, then their mobile device sends a notification when the users are physically close to one of the cultural heritage included in the project and can read the digital stories. Findings of a research on this application indicated that participants were appreciative of the digital stories and the iBeacon app (Nosrati, Crippa & Detlor, 2018).

Crowdsourcing, involvement of volunteers in a digitization project, is another suggestion made for cultural institutions. People (experts and novices) can contribute to the description of digitized objects and interpreting documents. For instance, projects by the National Maritime Museum and the Royal Observatory in Greenwich have worked with volunteers in transcribing documents and recognizing details in photographic collections (MiBACT, 2014). Another example is the crowdsourcing program launched by The Library of Congress (crowd.loc.gov), that connected the Library with virtual volunteers to transcribe text in digitized images from the Library's historic collections.

Libraries and cultural heritage

Although they hold disparate collections, libraries, archives, and museums have a common mission, which is to make their collections (information and cultural heritage resources/assets) accessible to intended users (public and academic communities). Certainly, making resources accessible to users requires to take other actions such as collection (gathering), organization, preservation and promotion.

Cultural Heritage as physical as well as digital objects has been housed in libraries and digital libraries for a long time. Libraries, in fact, have a long history of collecting, storing, organizing, preserving and providing access to cultural heritage materials. In order to enhance

[3] Digital storytelling: narration technique using digital means. Transmedia storytelling: narration technique that makes it possible to tell stories using various means in different locations, such as one segment via computer, another in a museum, one through a film, and another through multimedia installations.

access, during their history, libraries have duplicated and/or reformatted documents. In medieval times, monks transcribed documents by hand; in twentieth century, microfilming projects were initiated to preserve print holdings, in particular newspapers. Thousands of rare and/or crumbling newspapers reformatted. Beginning in the 1990s and accelerating in the 2000s, increasing number of libraries (all sorts from academic to public) started to digitize their unique holdings, including photographs, postcards, books, manuscripts, maps, and analog audio and video recordings. Today digitization is the ultimate method for preservation. Ancient documents as well as precious and fragile materials because of their historical and cultural importance, combined with century of exposure and degradation are the prime candidates for digitization. Digitization not only contributes to the conservation and preservation of heritage resources through high quality images, but also provides improved access by the citizen to these resources (Boock & Vondracek, 2006).

Documentary works in all formats (including digital) are a key part of humankind's cultural heritage and they are kept in a wide range of libraries (including special, national, academic, research and public libraries). In order to provide access to future generations, organizing, preserving, and safeguarding cultural heritage in their collections, is at the core of the work of libraries. Unfortunately, documentary works (like other forms of cultural heritage) are under constant threat of destruction. Neglect, destruction in war, conflict or natural disaster are some of the examples for threat (IFLA, 2017). Significant collections worldwide have suffered a variety of fates. In addition to destruction, looting and dispersal, illegal trading, inadequate housing and funding have played a part in it. Much as vanished forever; much is endangered **(**UNESCO, 2019**).**

Many libraries and archives were looted or destroyed in various countries (e.g. Libya, Egypt, Syria, Yemen, Bosnia). For example, during the war, Iraq lost many of its cultural heritage materials such as books, journals, newspapers, and manuscripts. According to the director of the Iraq National Library, 60 percent of the library's historical documents were lost and 25 percent of its books were looted or damaged (Moustafa, 2017). The cultural heritage that was lost due to conflicts in the Balkan countries, in 1990s, can be given as an example from Europe. The National and University Library in Sarajevo was set on fire in 1992. More than million books, thousands of rare books and manuscripts were destroyed. Only 10 percent of the whole library collection was saved (Tonta, 2009). The archival documents belonging to the period of 1878-

1918 were damaged when The Archives of Bosnia Herzegovina was set on fire at the beginning of 2014 (Tonta, 2016).

These events prove the importance of information professionals' work in digitizing cultural heritage assets to safeguard and preserve the history of the mankind. There are other examples to show libraries' role in safeguarding cultural heritage. In 2013 when armed groups occupied Northern Mali and Timbuktu, librarians and volunteers smuggled the manuscripts to safeguard them during the occupation. Since then, the manuscripts have been kept in the capital and are undergoing restoration and digitisation work. After the Earthquake in Japan in 2011, libraries from across Japan came together to help rebuild lost infrastructures, safeguard and preserve damaged materials (IFLA, 2017).

Preservation of library and archival materials focuses on preventing or slowing down their deterioration. Implementing the practices of preventative preservation rather than reliance on *after the event* intervention by conservation is given priority (Harvey, 1993). Additional to digitization of unique heritage, libraries and archives undertake activities to preserve them by providing proper housing, protection from mutilation and theft, and occasional repair and restoration (Ogden, 1994). Facilitating easy access and reference are other services offered (Ekwelem, Okafor & Ukwoma, 2011).

In libraries, although not as common as paper-based resources, there are tendencies to collect other types of cultural heritage resources. One example is the initiative started by Kanye Public Library in Botswana to capture, record and document cultural events such as cultural day celebrations and provide access to this collection of videos and photos (Setshwane & Oats, 2015). Another promising practice which can be used to connect libraries with cultural heritage could be the game of digital re-discovery of culture as described in their article by Mac An Airchinnigh, Sotirova and Tonta (2006).

When the year of 2018 was declared *the Year of Cultural Heritage in Europe*, it was indicated as an opportunity by IFLA to draw attention to the involvement of libraries in heritage from the oldest manuscripts to the newest born-digital materials. According to IFLA (2018) making it widely known might help increasing awareness especially at the political levels and might increase the chances for libraries to receive the support (both legally and financially) required to continue undertaking their work in this field effectively.

Libraries have always been at the forefront of efforts to fight against various threats by safeguarding, preserving and providing access

to documentary cultural heritage. "Providing the community with sustainable access to its heritage helps to foster creativity, build resilient societies, and further development. It is therefore crucial to involve libraries in all discussions and actions around the preservation and safeguarding of cultural heritage, especially in the context of the 2030 Agenda. Libraries are key partners for any effort to ensure preservation and access to human kind's cultural heritage for future generations" (IFLA, 2017).

Today, vast amount of libraries, museums and archives have already started to digitize their collections and place them on the web. By digitising their collections, cultural heritage institutions make information/ resources that was previously available only to a limited group of users accessible to all. The benefits of digital access for collections are identified as follows: "Easy to be viewed from anywhere, at any time; can be readily printed from the web; viewers can find what they are looking for quickly and independently; electronically enhanced images can be viewed with greater legibility; increased use of collections and facilitated learning and research" (Jones, 2001 as cited in Ekwelem, Okafor & Ukwoma, 2011).

Due to their special collections the role of the national libraries as the guardian of the national cultural heritage has long been recognized. During the last couple of decades, national libraries worldwide have become active in digitising their holdings and promoting them on their websites in different ways. Findings of a research carried out on 50 European national library indicate that almost all (94 percent) have either digital holdings or a digital library, and about half of these libraries (58 percent) create virtual exhibitions although there are significant differences in quality and functionality among them (Šalamon-Cindori, 2017).

Recommendations regarding the digital preservation of cultural heritage in libraries include: providing necessary infrastructure; providing adequate funding; taking measures against changing formats/ standards/hardware/software to ensure sustainability; developing online services to provide access to cultural heritage; providing large bandwidth Internet connectivity; making online services available in other languages; promoting cultural heritage online including the social media; monitoring and measuring the efficiency of online operations; providing access to these services through mobile devices; backing up both the content and services; developing creative services that help increasing public use; developing measures for quality assurance; training librarians who are responsible from these operations; looking

for best practices to use them as the basis for developing new services and/or improving the existing ones (Šalamon-Cindori, 2017; Ekwelem, Okafor & Ukwoma, 2011)

As mentioned above, training of librarians, in other words, capacity building in preservation techniques is important. One of the primary problems faced by libraries is lack of human resources, particularly, in the area of digitization. There is no doubt that, digital projects (digitization) require new skills. Cultural institutions should give priority to their human resources development. Even when the digitisition is outsourced, there is a need for library staff to learn at least the basics to keep up managing their digital collections and services (Ekwelem, Okafor & Ukwoma, 2011).

Collaboration among libraries, archives and museums has been also a popular topic. There is no doubt that their collections are complementary and they all preserve and provide access to cultural heritage. Learning from each other (libraries and archives can learn from museums about how to better exhibit their heritage resources and museums can learn from libraries about how to provide better access to their collections) and lending to each other are the opportunities and real life examples (Zorich, Waibel & Erway, 2008). Certainly, cooperation and collaboration efforts are not limited with LAM institutions. For instance Tokic and Tokic (2017, 2018) argues that libraries' cultural heritage can contribute significantly to the development of tourism. Library facilities and services (library buildings, specific features of the library, heritage assets in their holdings, various cultural events, concerts, films, exhibitions, services) can be interesting to tourists from different aspects. Thus, it is crucial to establish a successful cooperation of librarians who know the specific resources of libraries with representatives of local authorities, tourist boards, marketing professionals and tourism entrepreneurs.

Digital libraries

Evidence proves that, today, launching a digital library is the most common practice for the preservation of cultural heritage among heritage institutions, particularly in libraries. From the late 1990s onward, the use of cultural content in digital libraries has increased exponentially. This is mostly due to changing circumstances such as changes arising through research, development, and innovation in the ICT industry (Poole, 2010). Many novel tools and techniques have been developed to facilitate digitization, protection, promotion, and access to cultural heritage information.

On one hand, digital technologies enabled cultural organizations to overcome the traditional constraints imposed by physical sites, in other words, expanded libraries' audience reach and opened new possibilities for new activity and services. Digital libraries have significantly improved the visibility and the accessibility of cultural heritage material for research, learning, and enjoyment (Chowdhury, 2015; Ruthven & Chowdhury, 2015). On the other hand, they have created new concerns about quality, sustainability, return of investment, and long-term cost (Chowdhury, 2015). As Ruthven and Chowdhury (2015) indicate, the processes of building up and managing digital libraries involve a number of challenges. For instance, because digital libraries include a variety of cultural heritage resources (ranging from stone carvings to manuscripts, paintings, sound recordings, films, video games, etc.,), each of these objects may require different metadata, indexing, retrieval, and filtering techniques to support better functionality.

Because the volume of digital cultural heritage data is growing quickly, it is a priority to manage such a huge amount of data in an efficient and selective way, making it available to the researchers and the citizens worldwide. Efforts were made from the mid-2000s to assure that treasures of heritage institutions originally *hidden* from the public become available and accessible to all who are interested in these valuable special collections (Aparac-Jelušić, 2017). Two massive and largely international projects carried out to realize this goal are the World Digital Library (WDL) and Europeana.

The idea of WDL dates back in 2005 and the design of the prototype was realized through a consultative process that involved UNESCO, IFLA, and individuals and institutions in more than forty countries. The aim of WDL is to provide free and easy access to world's cultural heritage via internet. The five main features of WDL are indicated as consistent metadata, description of each item, multilingualism, technical development and collaborative network (Nabi, 2012).

Europeana was funded as part of the i2010 policy. The aim was/is to provide online access to the digital content of European museums, libraries, archives and audio-visual collections. It involves representatives of heritage and knowledge institutions including numerous national libraries. The Europeana web site, launched in 2008, through a multilingual user interface, provides users direct access to millions of digital objects such as film material, photos, paintings, sounds, maps, manuscripts, books, newspapers and archival documents. The number of digital objects available

through the Europeana portal reached about 58 million in 2019 (www.europeana.eu). The Europeana (European portal to both digitized and born-digital heritage) is considered as one of the most visible and comprehensive digitization initiatives. A sustainable financing and governance model is detected as the main challenges for the coming years in relation to enriching Europeana's content (European Commission, 2009).

A great percentage of digital collections are unique all over the world especially in regard to the collections in languages other than English. Majority of digital libraries, especially digital library projects of national libraries, focus on collections in their own languages. One of the major goals of any digital library is to provide easy access to information and knowledge to users and to be accessible over time. The users of cultural heritage information may vary from experts to novice users and each of which may have different needs and information-seeking behavior that need to be considered while designing information access systems (Ruthven and Chowdhury, 2015).

Beaudoin (2012) highlights the need for digital library frameworks that would enable cultural heritage to be used in different situations, by different users. In her view, contextual information is fundamental to the understanding of many aspects of digital content. Through the development of eight dimensions of context (technical, utilization, physical, intangible, curatorial, authentication, authorization, and intellectual) she proposed a fuller record of digital content with the intention of ensuring that digital preservation efforts include recording contextual information about each object to enable future retrieval, assessment, management, access, and use.

Liew (2012) warns that there is also a problem regarding the indigenous cultural knowledge *hidden* in a number of cultural heritage institutions. Such collections of indigenous cultural knowledge are held in many local LAM institutions These are part of oral heritage collections and could be digitized only if the institutions that collected them consult with indigenous communities, putting in place internationally acceptable guidelines, policies, and practices.

According to Beagrie (2000?), digitization activities related to cultural heritage are very resource intensive, and dependent upon the relationship between different stakeholders. Therefore, using a holistic lifecycle approach for digitization initiatives is needed to develop a sustainable and successful digital library.

Digital libraries are often the key institution through which citizens can engage with their history and culture. They have an important place

in restoring cultural assets to public view where the original is lost or too fragile for display and use. Delivering cultural heritage resources has become an imperative associated with the core mission of libraries (Deegan & Tanner, 2006b). Attempts to reach out to new audiences and to offer to current audiences new resources and services are major driving factors behind many digital libraries and digitization programs. Tanner (2005) also claims that "the justifications for delivering cultural resources digitally are rarely made on economic grounds, as the returns on investment are relatively small, but the cultural, educational, and prestigious returns are quite high".

Another indispensible aspect of digital libraries for cultural heritage in general is the constant fear that data might be destroyed or lost, which raises a concern for its protection and preservation. The documentary heritage has always been at risk of damage or destruction through natural or human forces: fire, flood, warfare, or neglect (Deegan & Tanner, 2006a). The main reasons for the threat to digital heritage or, more precisely, digital obsolescence, are two factors that put in jeopardy current efforts in archiving and preserving what has been digitized or digitally born: first, since the technology develops ever more rapidly, the time before a particular technology becomes obsolete is getting shorter; and second, "unlike their analog counterparts, digital resources are much more 'unstable,' with the effect that the integrity and authenticity of digital cultural resources is corrupted" (Geser & Mulrenin, 2002).

Boock & Vondracek (2006) lists the tasks and responsibilities for digitization as follows: "proposing an item or collection for digitization, giving final approval for digitization efforts to move forward, coordinating the efforts, selecting content, negotiating with groups outside the library, assessing user needs (e.g. determining the audience, how the audience will search and retrieve information, what information and context the audience will require), determining web interface usability, selecting and developing metadata structures (e.g. determination of schema, field selection, field labeling, and data dictionary creation), selecting and creating controlled vocabularies, digitizing, assigning metadata, installing, maintaining and supporting software, programming (when/if necessary), designing web pages, training and instructing users of digital content, promoting the collections and public relations, legal and rights management, preserving and refreshing digital content".

Hargreeves' report (2011) indicates copyright related challenges among others. Many approaches have been documented and opinions presented

in the literature on copyright issues: from the ideas of Open Access and Creative Commons to the proposal that calls for the abolishment of the copyright. The decentralization of responsibilities and resources, as in Europe where different approaches have been taken, is another obstacle.

Today, a large number of online cultural heritage resources is made available through digital libraries websites. However, the discoverability of these resources through Internet search engines, and their re-use in other domains, are still underdeveloped. Many cultural heritage resources are not of a textual format (e.g., images, video or sound) and those that are, often lack machine readable full-text for search engine indexing. For discoverability, the creation of metadata has relied on. However, the existence of many individual digital libraries, maintained by different organizations, brings challenges to the discoverability of the resources by potential users. Metadata aggregation is an approach where centralized efforts (e.g. Europeana) facilitate their discoverability by collecting the resource's metadata (Freire, Meijers, Voorburg & Isaac, 2018). However, the costs related to the implementation of the technical solution for aggregation are high for data providers.

Nowadays, cultural heritage institutions are applying technologies designed for the wider interoperability on the Web. Freire, Meijers, Voorburg and Isaac (2018) have identified the Schema.org vocabulary and linked data as potential technologies for innovating cultural heritage metadata aggregation and proposed the use of vocabularies for description of datasets and their distributions, namely DCAT, VoID and Schema.org. They also claim that for those already publishing linked data in their digital libraries, the process for sharing their data with cultural heritage aggregators would become extremely simple and for those that do not yet publish linked data in use, implementing the technical requirements for cultural heritage aggregation based on linked data, would be more rewarding, since wider interoperability with other domains than cultural heritage would come as a valuable extra benefit.

Conclusions

The value and importance of *cultural heritage*, the definition of which expanded to include intangible and digital assets along with tangible ones, has long been recognized and efforts for its preservation have gained momentum throughout the world. Organisations from different sectors and professionals from various disciplines at different levels (local, national, regional, international), today, put tremendous effort into preserving and also making cultural heritage resources publicly available.

Memory institutions, libraries, archives and museums in particular, are committing increasing amounts of time and money for safeguarding the heritage resources in their collections. Cultural heritage assets have been housed in these institutions for centuries and libraries have a long history of safeguarding cultural heritage resources from manuscripts to born-digital material. Preservation efforts of libraries goes way back to medial times when manuscripts were copied by hand and also include microfilming initiatives in the following centuries. Today digitization is the ultimate method for safeguarding and is not only contributes to the preservation of humankind's cultural heritage in order to pass them on to future generations, but also provides improved access by citizens from around the world. Although, digitisation seems like the best method for long term preservation there are various factors to be taken into consideration for the success of digitisation programs, such as interoperability, quality of images, multilingualism, and short life span of technology (hardware, software, etc.) used and the risk for these digital heritage materials to become inaccessible when time passes. There have been countless efforts and massive digitisation projects mainly carried out by memory institutions (where libraries are always in the forefront) around the world. Now, it is time to move one step forward to focus on innovative services based on the cultural heritage collections and assets to increase awareness, enjoyable and creative use of these collections and increase their impact on the mutual understanding and welfare of societies.

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OPEN ACCESS TO RESEARCH OUTPUTS IN THE REPUBLIC OF MOLDOVA – INSTITUTIONAL POLICIES AND RESEARCHERS' VIEWS

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Open Access (OA) means free and unrestricted online access to research outputs, firstly to peer-reviewed research journal articles (Suber 2015). In the last years, several developments suggest that after years of work, a sea change is imminent in OA (Piwowar et al. 2018). First, international and national funding institutions are increasingly mandating OA publishing for grantees.

According to the national legislation and the number of open access policies approved at national and institutional level, the Republic of Moldova cannot be called a politically open territory. However, there are some encouraging examples, as well as a positive forecast for the future to support open access in the Republic of Moldova.

In the Republic of Moldova the state policy in the field of science and innovation is carried out under the *Code on Science and Innovation of the Republic of Moldova*, approved in July 2004. Several articles of the Code assure guaranteed access to scientific information. The state, in accordance with the current legislation, guarantees: support through access to information, through its dissemination; information assurance of the topics from the scientific and innovation field; free and non-discriminatory access to scientific-technological information resources (Code on Science and Innovation 2004). However, open access to scientific research at state level is not confirmed in the Republic of Moldova, primarily that financed from the public money, and besides this, the mechanisms for ensuring free and open access to the scientific and technological information resources are not specified.

In the Republic of Moldova have been launched several projects to support open access and upgrade information services, in order to improve the quality of academic studies which also focus on open and free access to scientific information (Ţurcan & Cujba 2017).

The Research and Development Strategy of the Republic of Moldova until 2020 (2014) has set to accomplish several objectives aimed at reforming the accessibility and dissemination of scientific information, including the increase of public confidence in science and it will foster the citizens' and the civil society's transparent commitment in the research and development areas, by making it easier to access scientific knowledge.

The National Strategy for the Development of Information Society „Digital Moldova 2020" (2013) includes the development and implementation of the Program on creation, development and exploitation of digital content in the Republic of Moldova, which implies taking such actions as:

a) facilitating the development of data centres / digital deposits for local content, complying with the standards on content management, conservation and access over time and setting up the public access digital content Register (which will also include the orphan content);

b) publish on the open data portal all the information of public interest in electronic format, from the public authorities, and regulating the publishing and updating of information, representing digital content, as well as procedures for digital content access and use.

The National Program for Research and Innovation for 2020-2023 (2019) mentions the necessity to scientific-technological and informational support of open science in the Republic of Moldova.

An important development is the recent adoption of the *Roadmap for the Integration of the Republic of Moldova into the European Research Area for 2019-2021* (2018). It sets that for the Republic of Moldova is a major priority to ensure open access to scientific results and services. In addition, the document mentions that harmonization of access policies is one of priorities for integration of the Republic of Moldova into the European Research Area. This will help Moldova make better use of the EU's research and innovation opportunities under the current programs.

Open Access initiatives are being implemented in the Republic of Moldova by Gold OA – the development of an alternative way of publishing via open access journals. Currently, 40 national scholarly journals have approved open access policies. At the same time 30 journals registered in DOAJ with open access (date 10/10/2019).

Regarding Green OA, it is supported by the creation of open access repositories and approval of institutional policies on self-archiving the publications of the institution staff. Currently, in the Republic of Moldova there are 14 open access repositories – ten university institutional

repositories and one institutional repository of the research institution, and three important national research, development and innovation (RDI) repositories (Țurcan 2018). An accomplishment in promoting and preserving the scientific works in the Republic of Moldova is the fulfillment the main goals of several projects – the creation of institutional repositories supporting the EU standards and protocols regarding the Open Archives Initiative (OAI) and ensuring the efficient dissemination of content.

To achieve this goal, the university libraries from the Republic of Moldova have joined their efforts and decided to act jointly. Due to the international projects *Modern Information Services for Improvement Study Quality*, co-funded by the Tempus Programme of EU (2013-2016) and *Modernization of academic library services in Moldova*, funded by the Norwegian Cooperation Programme in Higher Education with Eurasia (2016-2019), the university libraries developed and approved the institutional open access policies. In order to regulate the process of organizing and efficient operation of the institutional repositories they created and developed a set of documents including: regulations on the organization and operation of the institutional repository, a contract with the author on the distribution of publications in the repository, the archiving guide of publications in the repository.

Universities from the Republic of Moldova accept and recognize the strategic importance of open access to information; express the vision of the institution regarding the benefits and impact of open access on the academic community and take responsibility to disseminate, as widely as possible, the findings of scientific activities funded from public budgets and projects based on the principles of open access. Universities also encourage researchers to show their support for open access by submitting their publications in repositories using alternative models of scientific publishing in open access. In order to motivate researchers to provide open access to scientific publications, Moldovan universities have set the objective to register their institutional policies in international registries. University policies which allow open access to scientific research outputs, carried out from public funds, were registered in the Registry of Open Access Repository Mandates and Policies (ROARMAP). Currently, there are 9 open access institutional policies registered in the ROARMAP which belong to universities from the Republic of Moldova (10.10.2019).

The analysis of open access institutional policies from the Republic of Moldova revealed that through the open access policies all institutions encourage researchers and teaching staff to submit their works in

institutional repositories. Institutional policies mandate the compulsory registration of scientific publications which result from the scientific research, partially or fully, funded by the state. At the same time, some institutional policies stipulate that in case of embargo, the publications developed from state-funded research will be registered in the institutional repositories in 6 months after publication.

All the open access institutional policies support the implementation of open access via two models: self-archiving in the institutional repository as well as publishing in open access journals registered in DOAJ. At the same time, several open access university polices encourage authors to publish with publishing houses that support open access and allow self-archiving in institutional repositories and encourage the teaching and research staff to place the papers published before the approval of the open access institutional policy. Policies require authors to negotiate with publishers the terms of including the publication in the institutional repository, provided there are copyright restrictions, so that the publication is included in the repository no later than 12 months after publication.

The national universities are concerned about the quality of scientific publications that creates both a visibility for the institution and an image in national and international scientific environments. Therefore, university open access policies authorize the adoption of an efficient peer-review process in order to preserve the quality standards.

Thus, the institutional policies of open access from the Republic of Moldova encourage researchers, grant holders, teaching staff to publish their works in accordance with the principles of the open access paradigm, financed from public money and funds to ensure the long-term preservation of digital scientific works and provide the widest possible access to the scientific works of the academic community.

In order to learn out about attitude of academia to open access to research outputs, Information Society Development Institute conducted two surveys: in January-February 2016 and May-July 2018. Some of the surveys' results are presented in the book *Open Science in the Republic of Moldova* (2018).

The first survey regarding the accounting of the digital scientific content and the assessment of the needs for the digitization of the national scientific content was conducted within the national project *The pilot platform for quality assurance and visualization of digital scientific content in the Republic of* Moldova (2015-2019)". The survey's *main objectives* were:

- to map the existing digital scientific content;
- to assess the needs for the transposition of national scientific content in digital format;
- to find out the opinion of Moldovan academia vis-à-vis openness of publications and research data;
- to catch the attitude of leadership of research institutions, project managers and journals' editorial boards regarding open access policies.

Responses were collected from 39 representatives of R&D institutions (75% success rate); 48 editors of scientific journals (success rate: 63%); 83 managers of national research projects (success rate: 34%); 23 libraries (success rate: 71%).

The second survey on the mapping of the research data ecosystem in the Republic of Moldova was carried out within the framework of the project *„Elaboration of conceptual and methodological framework for e-Infrastructure of data in the RDI field of the Republic of Moldova (2016-2019)"*. Unlike the previous survey this one *was focused* exclusively on research data.

The *main goal* of this study was to identify the needs of the RDI community in the Republic of Moldova on the management of scientific data over their lifecycle (creation, processing / analysis, storage / preservation, sharing / access and use). The specific objectives of the survey were:

- to identify the types / formats and sources of research data;
- to find out the modes of storing and preservation of the research data;
- to discover the ways the research data are processed and analysed;
- to learn the procedures of the research data management;
- to determine methods of sharing, access and use of the research data;
- to find out the opinion of Moldovan academia regarding openness of research data.

Responses were collected from 48 RDI institutions (92% success rate), including 13 higher education institutions. Respondents with various positions within these institutions participated in the survey, including: 25 heads of RDI institutions (12.3%); 42 project managers (20.7%), 65 laboratory / research group managers (32%), 34 scientists (16.7%), 23 university teachers (11.3%), 4 PhD students (2%), other positions (10 - 5%).

Both surveys highlighted the need to improve the circulation of knowledge and access to publication and research data. Thus, the respondents of the first survey totally or partially agreed that data obtained from research funded exclusively from public funds as well as those that are partly funded from public and partly from private funds should be available for reuse and free on the Internet.

At the same time, the first study's outputs revealed that majority of scientific institutions agree that scientific works should be in open access, albeit after a period of embargo.

This research has highlighted the need to improve the circulation of knowledge, access and preservation of scientific information. Most of the respondents (R&D institutions) totally agreed that the largest contributions should be made in the following directions:

1) approving the national policies on access and preservation of scientific publication and research data (24 institutions);

2) supporting the development of a national network of repositories (26 institutions);

3) encouraging universities, research institutions, funding agencies to realize specific actions, including the approval of open access policies (27 institutions). Also, the R&D institutions have agreed that it is necessary to provide access to the scientific content.

Representatives of the R&D institutions agreed that the results of research funded from public money should be in open access. 48.7% of the R&D institutions totally agreed that the publicly funded scientific research should be in open access.

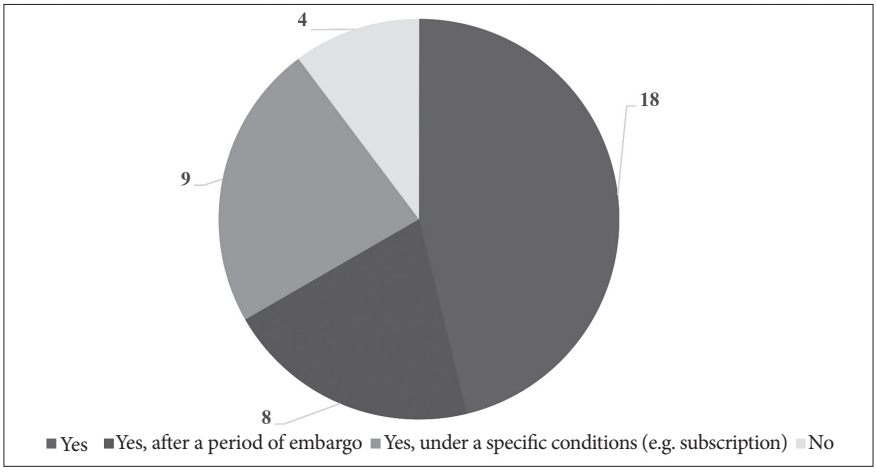


Fig. 1: Moldovan academia's opinion on open access to research data obtained from public funds (first survey)

The editorial boards of the scientific journals also supported open access to scientific publications. Thus, 95.9% of the scientific journal editors consider that the users, scientific community, society should

have open access (free and unrestricted access) to publications resulting from publicly funded research. Most of scientific journal editors (36 respondents) agreed that journals should be in open access; a part of the editors (13 respondents) considered that only some scientific journal articles should be in open access.

Most of the national research projects managers agreed that the results financed from public budget should be in open access. In particular, open access must be offered to: project proposals accepted for funding (47 respondents); final project reports (44 respondents); scientific data (41 respondents); deliverables (36 respondents) out of 83 respondents. The majority of project managers confess that they prefer hard copy for dissemination of research data and only 15% of project managers are ready to disseminate their research outputs using open access.

The second survey highlighted the need to improve the circulation of knowledge and access to research data. Thus, 31% of survey participants noted that they unconditionally share research data, 60.1% said they share the research data according to the conditions specified in the research project, only 14.3% do not share their research data.

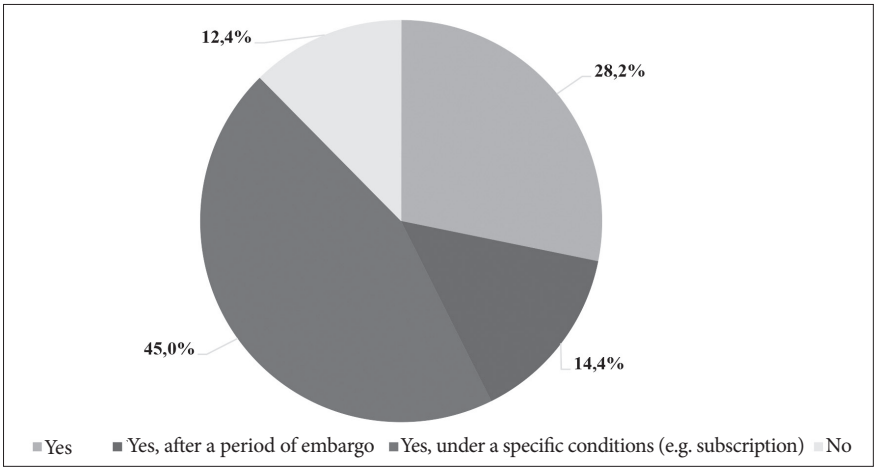


Fig. 2: Moldovan academia's opinion on open access to research data obtained from public funds (second survey)

Survey participants were asked what options they would choose in case they would share or plan to share research data. Most respondents noted that they will present data to journal as a support for the publication

(64%). Also, other data sharing options have been identified, such as sharing the research data to colleagues on request or informally (39.9%), the data will be available online on the project or institution site (34.5%), storing data in a specialized database or repository (33.5%) etc.

This survey provided questions on open access to research data resulting from public funding (Figure 2). The majority of researchers (177 respondents) believe it is necessary to open the data resulting from public money-funded research. 57 respondents (28.2%) opted for unconditional open access, 29 respondents (14.4) were granted open access after an embargo, and access under certain conditions was supported by 91 participants survey (45%). Only 25 researchers (12.4%) do not support the opening of data from state funded research.

At the same time, the survey participants have specified that research data must be accessible to colleagues, scientific community, PhD students, decision-makers, educational institutions and other users, and one of the primary conditions for using research data is to cite the source. Also, it was mentioned that there is no mechanism for managing and coordinating international projects in the Republic of Moldova, some data banks are not accessible to the public, and researchers do not have sufficient skills in managing research data.

In conclusion to the above, we have discovered that institutions have become aware of the need for open access dissemination of scientific publications in the Republic of Moldova. To achieve this objective a number of institutions are adopting support or compulsory mandate policies for the publications of the institution staff, mainly those funded from public money.

In the Republic of Moldova open access is supported by two complementary models: self-archiving in institutional repositories and publishing in open access journals. For the purpose of implementing, encouraging and promoting the submission of scientific and didactic publications, 11 universities from the Republic of Moldova have approved open access institutional policies and promote open access to documents through institutional repositories. Also, 40 national scholarly journals have approved editorial open access policies.

One distinct feature is that in the Republic of Moldova universities are more active in promotion of open access to research outputs by means of institutional repositories, while research organizations are more conservative and prefer publishing scientific works in open access journals.

Although there are some peculiarities in the provisions related to submission terms of publications in institutional repositories, all stipulated provisions in open access institutional policies do not restrict the freedom of publication or research. All the universities that have approved the open access policies are interested in promoting a new open access paradigm to offer more benefits to science and society, an increased visibility, a greater impact and prestige in the academic scientific community, improvement in the dissemination of research outputs conducted in the universities from the Republic of Moldova.

The comparative analysis of both surveys' answers shows that the rate of respondents who unconditionally accept open access to research data obtained from public funds decreased from 50% in 2016 to 28% in 2018. At the same time, those who accept conditional open access increased twice, from 23% to 45%. However, the rate of those who do not support open access to research data did not change significantly (10% in the first survey and 12.4% in the second survey).

In conclusion, we can mention that Moldovan academia is ready to provide access to research data. One of the main issues that discourages research data sharing is the issue of copyright protection. There are some concerns about the loss of property rights and copyright infringement in case of sharing and open access to research data.

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THE DEVELOPMENT OF ACADEMIC LIBRARIES IN ARMENIA

UDC 027.7:004.91(479.25)

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The current article aims to present the main directions of the development of academic libraries in Armenia as well as their achievements and anticipated general outcomes.

Since the beginning of 2000s some noticeable development tendencies have been registered in the sphere of library in Armenia. This first of all refers to the establishment and continuous enrichment of the Union Catalog of Armenian Libraries, creation of Armenian and foreign scientific literature in Armenia, establishment of Pan-Armenian Digital Library as well as digitization of the Armenian Press. The Armenian library community has adopted the principle of open access which has served as a basis for the selection and investment of open soft in Armenia.

Since 1990 the academic libraries in Armenia have faced considerable difficulties while walking through the path of development which is conditioned by socio-economic and political changes of the country. Any change made in the systems of education and science has its direct impact on universities, including their libraries. The main source of income of academic libraries is considered to be the centralized financial resources provided by the top management of the universities and in rare cases libraries get international funding. The role of Armenian academic libraries is mainly viewed as a part of the educational process rather than support of scientific-research activity of the university. The rapid development of the sphere of library and set international criteria constantly require changes in every field of the library science.

In the modern paradigm the goals and mission of libraries and librarians also undergo changes. The cooperation with the field specialists at international level becomes a priority. Unfortunate, the research on Armenian libraries, especially on academic libraries, can hardly be

found. In this context, the only research work is the comprehensive analysis entitled "20 Years Later: Armenian Scientific Libraries Today" in which only two university libraries are involved (Donabedian, Carey and Balayan, 2012).

Since 2004 Armenia is a member of the Electronic Information for Libraries (EIFL) which is presented on behalf of the Electronic Library Consortium of Armenia (ELCA) (Eifl.net, 2019). Within the framework of the mentioned membership the Armenian libraries, particularly academic and research ones, have the opportunity to be regularly updated on universal library development tendencies, priorities and policies, to get professional consultancy, to participate in capacity building programs as well as to minimize technological obstacles and those hindering the availability of electronic information. One of the crucial achievements reached within the scope of the EIFL membership is the availability of international scientific databases which becomes possible due to the efficient and collective negotiations conducted by the EIFL member states.

The current problems and development tendencies of Armenian university libraries are presented below:

Service

In 2003 the Union Catalog of Armenian Libraries (UCAL) based on the ALEPH library management system was established. Armenian big universities also became participants of the UCAL. Because of the lack of financial resources some libraries invested the KOHA system based on open code principle in 2013. It not only gave the opportunity to transfer the data of the previous catalog to the new system but also enabled to apply the multifunctional system – patron electronic cards, efficient management of collections, enhancement of accountability, management of digital materials through catalog (more details are available in - Chulyan and Galstyan, 2019). The number of libraries working with the KOHA system is increasing. In the near future the Armenian community of KOHA users will be established and it will become a platform for professional networking, thus serving as a basis for the transfer of new knowledge and best practice as well as for more efficient operation of the system.

The university libraries mainly use the UDC library-bibliographic classification which is translated and also available on the website of the UDC International Consortium (Udcsummary.info, 2019). Today

university libraries face the difficulty in terms of availability of sufficient number of scientific repositories. This is conditioned by both the scarce of financial resources and insufficient level of language proficiency among librarians. Some libraries provide the "Online Loan" and "Question to the Librarian" services.

The proportional development of readers' skills to use the systems and scientific repositories is another crucial problem. To solve it, some courses on "Information and Digital Literacy" are organized in libraries.

In almost all academic libraries of Armenia the culture of providing service to users with disabilities is not formulated yet. The building facilities of libraries are partially adjusted to free mobility of library users with special needs, are not technically equipped, and the library funds are not replenished with literature in respective formats, with necessary number of materials and in thematic directions either. This problem needs more social and political solution, and in this respect the technical equipment of libraries, content acquisition of funds as well as multidirectional development of librarians' professional competences can have a significant positive impact on the activity of people with special needs, thus encouraging them to get higher education, to develop their professional skills, etc. In this regard, Armenia is currently taking some steps to ratify the Marrakesh Treaty which is aimed to facilitate access to published works for persons who are blind, visually impaired or otherwise print disabled (Wipo.int, 2019).

1. Acquisition

The acquisition of academic libraries is ensured in different ways, depending on the direction and opportunities of the given university. The process of acquisition of academic libraries often faces many obstacles, in particular, regulatory and conceptual problems of the process of literature acquisition (grounding of selection of necessary literature in the context of diverse and multicontent publications, acquisition of foreign literature, online purchase, etc.). The acquisition and availability of literature in formats compatible with the needs and skills of library patrons is one of the challenges the libraries currently face.

One of the main means of acquisition is the donation of literature. Armenian libraries make book exchange with the US Congress Library with the support of the Information Resource Center of the US Embassy in Armenia (PanARMENIAN.Net, 2019). In general, new academic programs and scientific concepts require modernization of regulations

relating to the development and management of library collections.

2. Professional Development

In Armenia the library education can be received in Armenian State Pedagogical University after Kh. Abovyan (Bachelor's, Master's and PhD degrees) and in the International Scientific-Educational Center of the National Academy of Sciences of the Republic of Armenia (RA NAS) (Master's degree). At the same time it should be noted that the above mentioned universities award the qualification of librarian without ad-hoc directions and in no accordance with types of library functions. This is a weighty hindrance especially for academic librarians as far as they need ad-hoc knowledge and skills in their working activity.

Some attempts are made to fill in this gap by means of different professional trainings, master classes and other activities. In 2015-2018 Armenia was coordinating the "Erasmus+ Capacity Building in Higher Education - Library Network Support Services: Modernising Libraries in Armenia, Moldova and Belarus through Library Staff Development and Reforming Libraries)" /LNSS/ Erasmus+ project (Lnss-projects.eu, 2019) which was funded by the European Union. The project aimed to improve the libraries of the LNSS partner universities through staff capacity building and modernization of libraries. The most important achievement of the LNSS project is considered to be the modules in eight different library directions which were developed by the partner universities (both leading and regional universities of Armenia, Belarus, Moldova) and were aimed at their professional training (Lnss-projects.eu, 2019).

The outcomes and the success story of the above mentioned project enabled to transfer the training courses to the platform of consortium and to make them continuous, aimed at development of knowledge and competences of librarians of the partner universities.

3. University Repositories

Armenian universities mainly publish digital versions of scientific journals in respective sections of their official websites, and the archives of scientific journals of the RA NAS institutes are digitized and open access (Flib.sci.am, 2019) but they are neither coordinated nor searchable by the one-search window; currently the universities take some activities in this direction. So far Armenian universities do not have university repositories except for the two (American University of Armenia, Public Administration Academy of Armenia) which, jointly with the library of

Bergen University of Norway, implement the project on "Establishment of Sustainable Platform for Open Access Publications in Armenia" in 2018-2019. The project is funded by the "Eurasia" program of the Ministry of External Affairs of Norway under supervision of the Norwegian Centre for International Cooperation in Education (SIE) (Oapa.aua.am, 2019). The goal of the project is to organize learning of provisions of the Law on Copyright, studies of researchers' approaches to open access, development of efficient working process of initiatives as well as software installation and modernization of university repositories in the two universities of Armenia.

Currently, the only repository is the Open Access Repository of the Armenian Electronic Theses and Dissertations but not the full versions of all dissertations are available there (Etd.asj-oa.am, 2019). This is mostly conditioned by the norms of copyright which protect copyright of authors (the author mostly does not give permission to make the full version of his/her dissertation available in the repository) on the one hand, and limit the open access of the scientific-research outcomes, on the other hand.

The principles of open access which are adopted within the scope of the "2020 Open Access Initiative" /OA2020 Initiative/ (Oa2020.org, 2019), are newly being considered and valued by the Armenian scientific community. In order to cultivate and reinforce the mentioned principles among the Armenian scientific community, some courses on "Digital Research Literacy" are organized for researchers to provide them knowledge on how to register in ORCID international united registrar for researchers and how to generate the identifier with international scientometrics, as well as on peculiarities of publication of articles in international scientific journals (Brusov.am).

In the upcoming three years this gap will also be filled in by means of the "Erasmus+ Capacity Building in Higher Education - Strengthening Research Management and Open Science Capacities of HEIs in Moldova and Armenia- MINERVA, 2019-2022" Erasmus+ project. The latter aims to foster the integration of main principles of open science in universities of Moldova and Armenia /four universities per country are involved in the project/. The Armenian academic community has already acknowledged the importance and mission of open access principles which are partially manifested by many initiatives taken by state bodies, educational systems, libraries, NGOs and publishers. However,

the lack of coordination, mutual understanding of criteria and clearly set legislation makes these initiatives inefficient and isolated from the universal development context.

Within the framework of the MINERVA project it is planned:

- to develop national and institutional policy, regulations, guides and other materials on open science which will stimulate partner countries,
- to establish university digital repositories in all partner universities and foster their infrastructural development and interaction,
- to support capacity building of scientists by sustainable maintenance of the principles of open science, to enlarge the scope of public involvement and to increase accountability especially for state-funded research.

As a result of the implementation of the MINERVA project it is planned to improve institutional policies on human resources and their activity by means of a number of national legislative changes which will serve as a firm basis and stimulation for preparation of researchers for the labor market and the society, thus promoting their career development.

Together with the investment of university repositories, it is also planned to make retrospective digitization and coordination of scientific outcomes of universities as well as further transition to the online publishing model.

In the spheres of education and science any innovation is a challenge for academic libraries, and the development of librarians' knowledge and professional competences should walk in line with the world development tendencies. No matter how much technical equipment the library has and how high the level of its automatization is, the human factor will play the most important role. That is why library education in Armenia should also be modernized in line with international criteria and trends as far as the role of librarians in solving the above mentioned problems is vital.

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RESEARCH DATA MANAGEMENT IN ACADEMIC LIBRARIES: LANDMARKS AND UNCERTAINTIES

UDC 027.7:004.91

Robert CORAVU

1. Introduction.

In the last two decades, due to the vast quantities of born-digital data produced in a wide variety of forms (texts, images, audio and video recordings, codes a.s.o.) and file formats and to the evolution of tools for dealing with, research data management (RDM) became one of the main topics of interest for scientists and information professionals, as a part of good research practice. The preservation, sharing and re-use of research data are requested not only by scholars, but also by governmental agencies, public and private funders, or publishers. The possibility to verify the research findings is complemented, under the extension of open access movement, by the facilitation of new research based on the output of the existing one. The universities and their libraries are among the institutional stakeholders that have begun to address these issues, becoming engaged in developing policies, services, and infrastructure for RDM.

Contemporary universities are generally perceived as institutions engaged in both teaching and research, but the degree of their involvement in research activities could differ depending on their type or on educational policies applied in different countries or regions of the world. In Europe, for most of the publicly-funded universities, teaching and research are core activities, this being clearly stated in Bologna Declaration and the European Commission documents which define and configure the European Research Area. On the other hand, in United States, China and other countries only some universities are financed for and carry out research activities (Deem, 2006)given the variety of pressures (including funding and mass higher education.

In this setting of the research in higher education, the university libraries fulfill one of their duties, that to provide research support services

for the academia. Their involvement in RDM seems to come naturally, taking into consideration the prior experience they have in developing digital products and services for research, as open access repositories, research impact measurements or research guides. At the same time, RDM implies some tasks which challenge the academic libraries and raise disputes regarding the extent of their role in this area. As Tenopir *et al.* (2017) note, all the history and current evolutions of academic libraries pledge for their place as "critical stakeholder" in RDM. The question is what we can realistically expect from them, considering the resources they have, but also in relation to the interest and involvement in RDM of other actors from the university.

2. What is research data management?

The research lifecycle includes data-related activities, as creating (discovery, planning, data collection, capture and create metadata), processing, analysing, preserving, giving access to (publishing and sharing) and re-using data (Nitecki and Davis, 2019). Research data management is „the set of practices to handle information collected and created during research" (Higman, Bangert and Jones, 2019), in order to manage it „as a valuable resource" and includes plans, policies, services, standards, and tools (*Research Data Management | FOSTER*, no date). These must take into consideration the security, technical, ethical, legal, cultural and managerial issues associated with the data lifecycle (Cox and Pinfield, 2013; Pinfield, Cox and Smith, 2014). The complexity of RDM is given also by the variations in practice among disciplines (Cox, 2018).

In order to handle research data, one must fix a set of principles (policies) that have to be followed and to operationalize them through a formal document - the data management plan - so the data remain available also after the research project is complete. The data management plan must include information and requirements regarding what and how much research data will be collected, where and in which formats will be preserved, what metadata and persistent identifiers will be used, the facilities and equipment needed, the individual and organisational responsibilities, the access rights, the policies applying to the data, covered by appropriated standards, where necessary (Si *et al.*, 2015) it made an interview with the Wuhan University Library's Research Data Service Workgroup to understand the procedure, difficulties and

experiences of their research data service. Based on the survey and interview, it analyzed the current status and difficulties of research data services in university libraries and proposed some strategies for others to reference. Findings– Of the 87 university libraries investigated, 50 libraries have offered research data services. Most of the services can be divided into six aspects: research data introduction, data management guideline, data curation and storage service, data management training, data management reference and resource recommendation. Among these services, research data introduction is the most frequently provided (47.13 per cent. Research data services are "services that address the full data lifecycle, including the data management plan, digital curation (selection, preservation, maintenance, and archiving), and metadata creation and conversion" (Tenopir *et al.*, 2013), all of which are implying the use of a vast array of tools.

As Wilkinson *et al.* (2016) underline, "good data management is not a goal in itself, but rather is the key conduit leading to knowledge discovery and innovation, and to subsequent data and knowledge integration and re-use by the community after the data publication process". This view on the importance of RDM in the perspective of widening the access to data was reinforced by the positions and actions taken in the last decade by different stakeholders for increasing the return on public investments in scientific research by making the data resulting from public-funded research openly available. We will mention here only two fundamental documents on this issue. In 2007, the Organisation for Economic Co-operation and Development published *OECD Principles and Guidelines for Access to Research Data from Public Funding*, providing to the stakeholders from member countries policy recommendations intended to facilitate cost-effective access to digital research data from public funding (Organisation for Economic Co-operation and Development, 2007). In 2012, the European Commission issued a *Recommendation on access to and preservation of scientific information*, which has been reviewed five years later (European Commission, 2018), reaffirming its commitment to support the access to and the re-use of public and publicly funded data. In this setting, the Recommendation furthers the open access policies which enable the use and re-use of scientific research outputs, including research data. Thus, beside the recommendation to make available until 2020 all scientific publications resulting from publicly funded research, the Member States are advised "to set and implement clear policies (…) for the management of research data resulting from publicly funded

research, including open access", with respect to FAIR principles (see Wilkinson *et al.*, 2016), which stipulates that data must be findable, accessible, interoperable and re-usable (European Commission, 2018).

The pressure not only to make the information about research outputs, quality, and impact as much as transparent, but also to open the access to research outputs themselves, has materialized in national and regional mandates or established by different funding bodies. At their turn, the academic libraries and librarians answered by developing library-based research data services (RDS) and acquiring RDS-related skills.

3. RDM in academic libraries: how far they can (or are allowed) to go?

Academic libraries have a long and rich tradition in the management of scientific information. Also, they are often partners of scholars, providing resources, guidance and instruction and being implied in different stages of the research. From the beginning, research data seemed to be just another scholarly asset they have to deal with, a natural extension of their roles, allowing them to engage in other stages of the research lifecycle. However, although research data related activities overlap with many traditional tasks undertaken by academic librarians, some phases of the research lifecycle are more challenging, especially because of their technological implications (Nitecki and Davis, 2019).

Many reasons are invoked in favour of the leading role that academic libraries can and must play in RDM and especially in the design of RDS: their basic mission to support the education and research in academia, their proficiency in collection management, the knowledge of different resource description frameworks, the capacity to store, preserve and organize information so it can be easily retrieved, the skills acquired more recently in managing institutional repositories or, not least, their experience in user education. Because many researchers may lack the time, expertise, resources or even the willingness to manage research data, librarians can assist and educate them for dealing with different datasets and related activities, adding this kind of training to their instructional portofolio (Tenopir *et al.*, 2017; Nitecki and Davis, 2019).

The RDM is just one part of the research support services provided by libraries within the university, but one that became more and more important. The results of a recent study (Si *et al.*, 2019) on this kind of services provided by academic libraries in 76 world-leading universities

enlisted in *QS World University Rankings* (2017) show that open access (identified in 64 libraries) and RDM services (RDS, o.n.) (62 libraries) are the most frequent, being followed by research consultation and scholarly publishing (59 libraries), research guides (47 libraries) and research impact measurement (32 libraries).

Results of different studies show that the array of library-based RDS, as well as the ways and the extent to which the libraries are being redesigned in order to provide them vary from one institution to another depending on factors as the financial and human resources, the institutional research policies or the position of the library within the university. Carol Tenopir and her collaborators inventoried some of these services (Tenopir, Birch and Allard, 2012; Tenopir *et al.*, 2014, 2017):

- helping researchers to locate resources about data management planning or metadata standards in their disciplines;
- creating and maintaining institutional data repositories;
- providing tools for data mining and visualization;
- advising and training researchers on data management activities;
- guidance on institutional research policies;
- help with creating data management plans and metadata for datasets;
- providing assistance with intellectual property and privacy issues surrounding research data;
- supporting grant proposal by data management planning, locating data-related services, publication support, and specific data management assistance;
- providing informational services (e.g. reference support for finding and citing datasets);
- providing technical services (e.g. technical support for data repositories, creating metadata for datasets).

Si *et al.* (2015)it made an interview with the Wuhan University Library's Research Data Service Workgroup to understand the procedure, difficulties and experiences of their research data service. Based on the survey and interview, it analyzed the current status and difficulties of research data services in university libraries and proposed some strategies for others to reference. Findings–Of the 87 university libraries investigated, 50 libraries have offered research data services. Most of the services can be divided into six aspects: research data introduction, data management guideline, data curation and storage service, data management training, data management reference and resource recommendation. Among these services, research data introduction is the most frequently provided (47.13

per cent identified six aspects of RDS which can be found in the majority of these services provided by the libraries of top universities investigated:

- *research data introduction*: what is research data and reasons to manage and share it;
- *data management plan guideline*: how to elaborate a data management plan, create metadata, store and archive the research data;
- *data curation and storage*: provide data storage and solutions for its long-term preservation (e.g. providing an institutional repository);
- *data management training*: develop the students' and researchers' skills for data management and sharing;
- *data management reference*: provide suggestions or assistance to whom and when needed on the data issues;
- *resource recommendation*: navigate external datasets/repositories and related resources.

Bryant, Lavoie and Malpas (2017) propose a RDS model with three categories of library services:

- *education services*, aimed to educate researchers and other stakeholders and to raise their awareness regarding the importance of good data management, to encourage the acquiring of RDM skills and to disclose RDM tools and resources;
- *expertise services*, which provide decision support and customized solutions for specific research data management problems (e.g. "helpline" resources to which RDM-related questions may be directed, direct consultation with librarians, support services as metadata creation, data preparation and mediated deposit, training programs for internal staff focused on creating the expertise needed to provide RDS);
- *curation services*, which supply technical infrastructure and related services; include the management of the data during the research process (active data management) and after its conclusion (long-term data stewardship).

A necessary distinction, from the perspective of the debate regarding the extent of academic libraries' role in RDM, must be made between research data management and research information management (RIM). RIM deals not with data generated by researchers, but with metadata - data *about* research activities, as information on researchers and their affiliations, publications, datasets, patents, grants and projects, statements of impact etc., which can be harnessed in many ways for purposes of the institution (Bryant *et al.*, 2017). RIM can be a border for the academic libraries which, for different reasons, are not able or

are prevented from getting involved in more complex RDM activities. This drives us to the fundamental discussion about the place of academic library among the other stakeholders, which addresses topics like how far the university libraries can go with the engagement in this field and the extent to which they may carry out a leadership role, the types of services they have to provide, the degree to which they can inform and influence wider institutional strategies or with whom and how they should cooperate in order to reach the RDM goals.

Due to its complexity and the necessary resources, the problem of research data management can be solved only by collaboration across and outside the university (with publishers, professional societies or data centres, for example) (Tenopir *et al.*, 2017). As the roles of different stakeholders are often not very well defined, these uncertain "jurisdictions" can generate conflicts and tensions which impede the intrainstitutional collaboration (Bryant *et al.*, 2017; Cox *et al.*, 2017). Other challenges that libraries may face, according to the literature on this topic, are the knowledge and skill gaps of library staff (Tenopir *et al.*, 2014) the lack of funding for personnel or of institutional support (Yoon and Schultz, 2017). An important issue is the specialized technical expertise gap of the personnel, which limits the services that can be provided by university libraries. This limitation is confirmed by studies conducted in many countries from different parts of the world (Tenopir *et al.*, 2017; Cox *et al.*, 2017) which show that the RDS developed by the academic libraries tend to focus less on technical services, other kind of services being preferred, with a clear trend towards advisory ones. Many of the missing technical services may be regarded as not specific to the libraries, but to IT departments, which may explain the lower interest in providing them; even some advisory services as data analysis/mining/visualization may be not offered by libraries because they can be better supplied by another institutional unit (Cox *et al.*, 2017). Another possible reason of limitations is the fact that the technical services require not only a specific technical knowledge, but also a bigger investment in time and resources (Tenopir *et al.*, 2017). In some countries, the limitations of library-based RDS can be explained also by the existence of data services implemented at the institutional or national level (Cox *et al.*, 2017).

The academic libraries can develop their capacity of supplying research data services by hiring new staff members, through in-service training and education of existing staff, or by outsourcing tasks to other internal units or external organizations (Cox *et al.*, 2017). The RDM workforce abilities

and knowledge became a main concern in libraries, the need for reskilling being underlined in the context of continuing education and training of librarians. This need is often acknowledged by librarians themselves (Yoon and Schultz, 2017). The new abilities and knowledge are mandatory if the librarians want to shift from servicing researchers to partnering with them (Nitecki and Davis, 2019). Despite their experience related to traditional library materials, the library staff may require training in relation to selecting and compiling data for inclusion in repositories or to build up an institutional data repository (Tenopir *et al.*, 2014)

Whether hiring new staff for the RDM or giving librarians the opportunity to specialize in this area, some libraries introduced a new job position: *data librarian*. The Research Data Alliance (apud Constantinescu, 2018)The European Union should have a functional Digital Single Market. One of the policies sustaining the efforts in such endeavour is building a European Data Economy (European Commission 2017a defines data librarians as "professional library staff engaged in managing research data, using research data as a resource, or supporting researchers in these activities". Because of the novelty of this position, many libraries still have unclear expectations from the people they hire for it. Constantinescu (2018) proposes a possible profile of the data librarian: he should keep data safe by designing and implementing data management plans and at the same time be a communicator, an innovator and a skilled technologist with data.

Perspectives

As we have previously seen, the academic libraries are more and more involved in RDM services and activities, but the perspectives on the nature and extent of their role can vary from country to country or even from one university to another in the same country. At first hand, this diversity can be explained by the relative novelty of these preoccupations in universities, which make their libraries to be in different phases of evolution depending on the moment when they started to approach RDM and on the perception of data management at the institutional level. At the same time, because RDM needs important investments, the research data services offered by a library depends very much on the resources available to its university and on how much it decides to allocate to the library for these kind of services. Thus, the financial capacity of its parent institution, but also the image and position of the library in the university influence its level of involvement in RDM.

The image and position of the library in university can be a result of a specific social and cultural setting, but it also depends on the quality of the services it offers and the professionalism of its staff. From this perspective, filling the RDM-related skills gap is considered to be a key element in any academic library strategy for the future. This will facilitate, among others, the supplying of the technical data services currently not present in many academic libraries.

A culture change in relation to RDM is needed in universities, to which many stakeholders are called to contribute. The existing experiences show that, beside the academic libraries, which must advocate for direct and indirect benefits of RDM, this change can be facilitated by the national policy makers and funders, national data services (e.g. Australian National Data Service) or specialized centres (e.g. Digital Curation Centre - UK) and different innovation organizations, which support and push forward the agenda of RDM by mandating the existence of research data policies in universities (Cox *et al.*, 2017). Library consortia and the associations of library and information professionals have also an important role to play in influencing the development of national policies regarding RDM and raising the awareness of the role that libraries must play in RDM. For example, the International Federation of Library Associations and Institutions (IFLA), in its *Statement on open access*, underlined that the development of the system of scientific and scholarly communication can be supported through the accomplishment of specific objectives, for instance, the provision of long-term preservation of research information (IFLA, 2011).

Even if the future of RDM in academic libraries has many unclear areas, as their relationship and division of roles with other stakeholders or their capacity to provide technical services, their openness to and involvement in RDM are essential for their relevance to research.

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RESEARCH DATA MANAGEMENT IN RESEARCH LIBRARIES

UDC [025.4:004.91]:061.1EU

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Libraries are evolving into places where skills in managing data are at a premium because more and more members of the staff need to know about how to manage the catalogue data, how to curate the metadata, to enrich the records and to make it accessible.

Participation in projects aiming to preserve significant parts of the collection through digitisation is another contributor to the skill pool.

Being part of digital humanities projects is yet another stream from which quantitative and qualitative measurements on data added supplementary experience to those who are wrangling data for research purposes. The following will look into what research libraries are dealing with in the framework of the European funded research, and how their staff should answer when it comes to implementing the requirements for funding awarding sought after by the research community members.

Libraries in general and research and university libraries precisely are at the gates of a new era beginning with the year 2020 from an European perspective. These gates are not the entrance into a welcoming and gradually accommodating era, being actually flood gates to the new reality of a continuous flow of data. There is a subtle change in the way libraries are interacting with existing digital environments, roles of the staff arrive often in the realm of data management let that be preparing metadata to shape it by the new rules of a repository, let that be connecting the catalogue in a national or transnational consortium.

Librarians are and should augment their core abilities in working with data as the pressure of preserving the research output mounts. For this very reason there is a need to understand the European policies and regulations concerning research output, copyright, open data, public sector information data, hence private life and the free flow of data.

1. The European context, policies and actions

Data is deeply embedded into the European policies from space and land management (geospatial), to genomics and material science. More than that, the subject matter of this study is actually the *digital data* as being translated actually as *big data*. For the benefit of placing research data in the wider context, the Commission frames it with the following statement: *whether it is geographical information, statistics, weather data, research data, transport data, energy consumption data or health data, the need to make sense of 'big data' is leading to innovations in technology, development of new tools and new skills*[1] ("Big data," 2014).

One of the major achievements of the European Member States is a more integrated market arriving to a much desired harmonized Digital Single Market. *Data is the raw material of the Digital Single Market*[2]. In turn, the market will lead to a profound transformation of the economy as *Building a European Data Economy*[3] envisages.

Data is at the core of the policies with a clear aim at the public sector data[4], research data[5], and private sector data[6] in order to build a European Data Economy[7] as a free flow of non-personal data[8]. All of these policies lead to the need of establishing a *common European data space - a seamless digital area with the scale that will enable the development of new products and services based on data*[9] ("Towards a common European data space," 2018).

At the beginning of the second decade of this new century, the European Commission began to switch for the Open Access to research centered policies and initiatives towards a more inclusive paradigm called Open Science[10]. This new paradigm has created a state of transition[11] in the context of all efforts aiming to establish a data-driven Digital Single Market. The final goal is to establish a European Cloud with a spearing

[1] https://ec.europa.eu/digital-single-market/en/big-data
[2] Towards a common European data space https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2018:0232:FIN
[3] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017DC0009&from=EN
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[11] http://data.consilium.europa.eu/doc/document/ST-9526-2016-INIT/en/pdf

initiative[12] being the establishment of an European Open Science Cloud - EOSC. At the moment, the European Union finances research projects requiring that the results should be published as Open Access. More than that, those who are willing to attach the data sets, this is possible via Open Research Data Pilot (ORDP) run within Horizon2020 Programme[13]: *open access to digital research data means taking measures to make it possible for end-users to access, mine, exploit, reproduce and disseminate the data via a research data repository without any charges for them* ("AGA –Annotated Model Grant Agreement," 2019). This is the first step towards making data a first-class citizen in the future European research ecosystem. The main instrument to participate today is preparing a Data Management Plan (DMP) as a deliverable of the project.

Libraries were part of the data mix right from the start of the European shift towards a data-driven economy exposing in *Riding the Wave: How Europe can gain from the raising tide of scientific data*[14] when librarians were placed as a centerpiece in the future management of research data: *how can we foster the training of more data scientists and data librarians, as important professions in their own right?* ("Digital Agenda to unlock the full value of scientific data," 2010).

According to *Open innovation, open science, open to the world - a vision for Europe*[15], an important document setting the new research means and requirements, in order to achieve the policy actions, the Commission established in 2016 an Open Science Policy Platform, a body dedicated to sustain the dialogue among the European stakeholders among which are mentioned the (research) libraries. The newly formed body already produced a set of recommendations from which it is relevant to the librarians those concerning raising the literacy level: *Member States need to secure support for the development of an accredited curriculum for Open Science skills training that fosters Open Science behaviours such as IT and data literacy, from primary school through the whole educational system*[16] („Open Science Policy Platform Recommendations," 2018).

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[12] https://ec.europa.eu/digital-single-market/en/news/communication-european-cloud-initiative-building-competitive-data-and-knowledge-economy-europe

[13] https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

[14] https://ec.europa.eu/digital-single-market/en/news/digital-agenda-unlock-full-value-scientific-data-high-level-group-presents-report

[15] https://ec.europa.eu/digital-single-market/en/news/open-innovation-open-science-open-world-vision-europe

[16] https://ec.europa.eu/research/openscience/pdf/integrated_advice_opspp_recommendations.pdf#view=fit&pagemode=none

Open Science Policy Platform put some ambition into the Open Science and in the process it needed to define the major stakeholder groups which include also the research libraries. Although the research libraries are part of most of the priorities, the most interesting one - Skills and Education - linked to the future services rendered for the researcher community, is that of training. Hence, such services cannot be provided if the staff of the libraries do not receive proper training themselves.

The strong argument for presenting this rich political context is because of the second pillar of establishing a common data space which is the seminal document *Recommendation on access to and preservation of scientific information*[17].

This document addresses all issues of current system of scholarly communication, and also an emphasis is put on how the current research output is safeguarded for future access and use. It recognizes the traditional role of the libraries and archives in preserving the research results, but due to the sheer volumes of data currently produced, there is a need for a systematic approach for long-term preservation.

A central piece of the recommendations is the research data, and there are two important aspects to be taken into consideration by those who are going to manage these digital entities. The first one concerns how the data will be managed, and all these aspects are embodied into what is called Data Management Plan - DMP. And the second issue concerns how open data is for the use and re-use of the fellow researchers and the public at large. The general principle that should govern research data is *as open as possible, as closed as necessary*.

Exposing the research data through connectivity and digital services should be done in respect to what is known as FAIR principles[18].

FAIR is an acronym designed to attach vital attributes to a dataset if one is to be treated FAIR. FAIR stands for *findable*, *accessible*, *interoperable*, and *reusable*. Actually FAIR data could be tracked based on 15 principles[19] from which 14 metrics are derived. The principles develop the specific term of *stewardship*, data stewardship. This development had a direct impact on Horizon2020 Programme as an extension of the Open Research Data Pilot[20].

[17] COMMISSION RECOMMENDATION (EU) 2018/790 of 25 April 2018 on access to and preservation of scientific information https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0790&from=EN

[18] https://www.force11.org/group/fairgroup/fairprinciples

[19] https://www.force11.org/fairprinciples

[20] https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

The metrics involved in setting data as FAIR concern managing **data objects** which are *Identifiable Data Item with Data elements + Metadata + an Identifier*. It is easy to observe that these components are actually in the scope of library well known services, fact that leads to the acknowledgement of libraries as prime actors in their management and stewardship.

2. Data Management Plans

There are many important aspects related to research data, and open research data specifically, but one of the important points of focus is the Data Management Plan - DMP. *A DMP describes the data management life cycle for the data to be collected, processed and/or generated by a Horizon 2020 project* stated the Guidelines on FAIR Data Management in Horizon 2020. FAIR principles are to be followed when elaborating on DMP. This document has the attribute of a *living* document, meaning that it can be updated in time, and one more important aspect related is that it shouldn't be ready by the time the Grant Agreement is signed.

Because librarians will act many times as support staff for the researchers, she/he or the team responsible should know how to answer the questions the actual DMP answers. The minimal template is available in *ANNEX 1 Horizon 2020 FAIR Data Management Plan (DMP) template* of *Guidelines on FAIR Data Management in Horizon 2020*. Besides this model, European Research Council provides another one mentioned as a linked resource in *Guidelines on Implementation of Open Access to Scientific Publications and Research Data in projects supported by the European Research Council under Horizon 2020*[21].

The staff of the research libraries should be fairly confident in taking the task of elaborating DMPs because all of the requirements are actually parts of already developed core skills. These skills come from the ability and the long tradition of reference services or participation in digital humanities projects, or developing in-house digital repositories. Much of the requirements revolve around attributing persistent identifiers, describing the digital objects employing metadata and specialized vocabulary, and how these entities arrive to be deposited and disseminated through specialized services like federated search or API access. The practice of DMPs actually rounds up all the ingredients for future preservation of the research output.

[21] https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-hi-erc-oa-guide_en.pdf

Elaborating a DMP also involves a fair knowledge of the copyright European framework, and also the General Data Protection Regulations[22]. Distinguishing between free flowing data and protected data is also vital.

One important aspect of FAIR data is to allow re-use, and this is possible only if the right licenses are applied to the data objects. A good knowledge of how to license digital objects it is needed. Re-use is one of the key points for the whole effort in putting the research data in the open. Recently, The European Commission took a Decision to *adopting Creative Commons as an open license under the European Commission's reuse policy*[23] which will allow a more uniformed approach when it comes to licensing. The license chosen is *Creative Commons Attribution 4.0 International Public License (CC BY 4.0)*. For row data, metadata and similar Creative Commons Universal Public Domain Dedication deed (CC0 1.0) was adopted.

It is worth mentioning the late initiative of **Plan S** backed by a wide coalition of research funders. The main principle: *with effect from 2021, all scholarly publications on the results from research funded by public or private grants provided by national, regional and international research councils and funding bodies, must be published in Open Access Journals, on Open Access Platforms, or made immediately available through Open Access Repositories without embargo*[24] ("About | Plan S," 2019). Application of the ten principles will provide a long expected shift in the way funding will run towards realizing Berlin Declaration[25] goals. One positive thing that Plan S produced is a revigored debate around Open Access issues. The stir this initiative produced at the initial stage took a toll on the principles and even the terms for entering into force.

Research libraries should be prepared to face this new stream added to the future deluge.

3. The skills needed

The librarians should be able to discriminate whether the data is *personal data* or is *free flowing* data. According to this first operation she/he will advice on how the data should be treated within the repository ingest and dissemination policies. At career level, still there are no established paths, most of the data related skills are taken in through personal effort in a need to solve data-driven activities.

[22] https://ec.europa.eu/info/law/law-topic/data-protection_en

[23]https://ec.europa.eu/transparency/regdoc/rep/3/2019/EN/C-2019-1655-F1-EN-MAIN-PART-1.PDF

[24] https://www.coalition-s.org/about/

[25] https://openaccess.mpg.de/Berlin-Declaration

In 2014, Commissioner Neelie Kroes mentioned in the context of Big Data scrutiny the following very important remarks: *no wonder big data is growing 40% a year. No wonder data jobs grow fast. No wonder skills and profiles that didn't exist a few years ago are now hot property: and we need them all, from data cleaner to data manager to data scientist* ("European Commission - PRESS RELEASES - Press release - Speech: The data gold rush," 2014).

There is also a hampering issue in the way of *tapping into the potential of data*. And this is linked to the issue of lacking incentives and rewards for those who are to participate in data sharing, and for those who will be in charge with managing the data, librarians accounted as well there is a lack of a clear career path *and the shortage of data-related skills and lack of recognition of their value*[26] ("European Cloud Initiative - Building a competitive data and knowledge economy in Europe," 2016).

The sets needed in data management for librarians

It was envisaged since long that the librarians will play a central role in research data management and preservation. Taking a look at "Re-skilling for Research"[27] we are able to identify today's needs: *preserving research outputs, data management and curation, complying with various mandates of funders, data manipulation tools, data mining, the use of metadata, preservation of project records, sources of research funding, subject standards and practices* (Auckland, 2012).

To the aforementioned skills, there is a term that enters in the realm of librarianship in the context of preserving the research outputs: stewardship. EOSC Pilot project comes to formalize the relation between research data management, open data science and stewardship. The framework of FAIR 4S formalizes some necessary definitions in *EOSCpilot framework of FAIR data stewardship skills for science and scholarship, and draft recommendations on FAIR training*[28]. We should retain the one for stewardship: *the formalisation of roles and responsibilities and their application to ensure that research objects are managed for long-term reuse, and in accordance with FAIR data principles*, a definition brought by EOSCpilot in *D7.3: Skills and Capability Framework*[29].

Out of the framework of EOSCpilot there is a role that raises interest: data librarian. The role was settled in the ecosystem by the EDISON Data

[26] https://ec.europa.eu/digital-single-market/en/news/communication-european-cloud-initiative-building-competitive-data-and-knowledge-economy-europe
[27] https://www.rluk.ac.uk/portfolio-items/re-skilling-for-research/
[28] https://www.eoscpilot.eu/sites/default/files/fair4s_eoscpilot_skills_framework.pdf
[29] https://eoscpilot.eu/sites/default/files/eoscpilot-d7.3.pdf

Science Framework, and from *Part 4. Data Science Professional Profiles (DSPP)*[30] we have also a description of the role: *data librarians perform or support one or more of the following: acquisition (collection development), organization (cataloguing and metadata), and the implementation of appropriate user services. Data librarians apply traditional librarianship principles and practices to data management, including data citation, digital object identifiers (DOIs), ethics and metadata* (Berg et al., 2017).

This emerging role implies training related to data literacy and information literacy.

The library staff need to understand the general framework of free flow of non-personal data looking into how data is used, stored and transferred[31]. When the library will deal with sensible data, like medical records, the librarian needs to understand General Data Protection Regulation (GDPR)[32]

Librarians are a well established role in the circle of Open Science actors. For this reason, they need opportunities to fulfill their mission as mentioned in *Categories of Open Science Skills*[33] according to a report of the Expert Group on Education and Skills under Open Science[34]. Librarians need a strong reference asking for a proper training framework based on the *Recommendations on access and preservation of scientific information* and *Providing researchers with the skills and competencies they need to practice Open Science*[35]. The later makes a relevant point for the need of training the librarians: "particular attention needs to be paid to developing and growing the cohort of information professionals (which can include librarians, data scientists, data stewards and others)".

Current research libraries need to provide training to the staff in the advent of big data in research. Gaining the right skill set will translate in better supporting researchers. A need for training to achieve technical abilities leads to a deep understanding of data management and data stewardship. This is encompassed by the action of the European Commission in *Digital Education Action Plan - Action 5 Open Science*

[30] https://zenodo.org/record/1044358

[31] https://europa.eu/youreurope/business/running-business/developing-business/using-storing-transferring-data/index_en.htm

[32] https://europa.eu/youreurope/business/dealing-with-customers/data-protection/data-protection-gdpr/index_en.htm

[33] Providing researchers with the skills and competencies they need to practise Open Science. https://ec.europa.eu/research/openscience/pdf/os_skills_wgreport.pdf

[34] https://ec.europa.eu/research/openscience/index.cfm?pg=skills_wg

[35] https://publications.europa.eu/en/publication-detail/-/publication/3b4e1847-c9ca-11e7-8e69-01aa75ed71a1

Skills[36] which aims to ***foster digital competences and open science skills*** *in higher education*. This is also the document that exposes in a brief statement the scope of Open Science skills: *from data management to legal aspects, including technical skills, such as data stewardship, data protection, scholarly communication and dissemination*.

There is another motive that has to be taken into account when the right mix of new skills is to be put on top of existing ones. Recently, the European Commission updated the *Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market*[37]. The text does take into account the evolution of services a library could offer, and one important one having the potential to shape the training is related to text and data mining. Added to that the lawful conditions in which digitisation projects with the purpose of digital preservation are also mentioned in the aforementioned Directive.

There is a very interesting mix of competences a librarian or a support staff should gain to stay relevant for the structural changes in how research and scholarly communication is done. The rise of digital repositories, complex algorithms capable of sifting through massive amounts of information, linked open data federated graphs, APIs and machine learning capabilities embedded even in the modest telephone terminals, sends the research libraries on a course of continuous appraisal of the needed qualifications and skills that will keep relevant the library as a service space.

Being able to work with data and funding policies concerning data stewardship, builds to a growing need for establishing able training services. Such services already exist rendered under varying names like *Center for Digital Scholarship*[38] in Finland and Belgium (Universiteitsbibliotheek Gent[39]) or *Digital Skills Services* provided by LIBER[40]. The type of services may vary in time but the constant will be a continuous change of the methods and models aiming to preserve the scientific output. The efforts of the library's staff should target also the technical aspects of how, what, when and where data will be integrated as part of the core business traits ensuring the survival of the frail digital entities for the future researchers and citizen scientists.

[36] https://ec.europa.eu/education/education-in-the-eu/european-education-area/digital-education-action-plan-action-5-open-science-skills_en
[37] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.130.01.0092.01.ENG
[38] https://www.helsinki.fi/en/research/research-environment/research-data-management
[39] https://www.library.universiteitleiden.nl/research-and-publishing/centre-for-digital-scholarship
[40] https://libereurope.eu/strategy/digital-skills-services/digitalskills/

References:

1. Big data [WWW Document], 2014. Digital Single Market - European Commission. URL https://ec.europa.eu/digital-single-market/en/big-data (accessed 9.27.19).

2. Towards a common European data space [WWW Document], 2018. EUR-Lex. URL https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2018:0232:FIN (accessed 10.1.19).

3. AGA – Annotated Model Grant Agreement, 2019.

4. Digital Agenda to unlock the full value of scientific data: High-Level Group presents report [WWW Document], 2010. Digital Single Market - European Commission. URL https://ec.europa.eu/digital-single-market/en/news/digital-agenda-unlock-full-value-scientific-data-high-level-group-presents-report (accessed 10.1.19).

5. Open Science Policy Platform Recommendations, 2018.

6. About Plan S [WWW Document], 2019. Plan S. URL https://www.coalition-s.org/about/ (accessed 10.1.19).

7. European Commission - PRESS RELEASES - Press release - Speech: The data gold rush [WWW Document], 2014. European Commission Press Release Database. URL https://europa.eu/rapid/press-release_SPEECH-14-229_en.htm (accessed 9.27.19).

8. European Cloud Initiative - Building a competitive data and knowledge economy in Europe [WWW Document], 2016. Digital Single Market - European Commission. URL https://ec.europa.eu/digital-single-market/en/news/communication-european-cloud-initiative-building-competitive-data-and-knowledge-economy-europe (accessed 10.1.19).

9. Auckland, M., 2012. Re-skilling for Research.

10. Berg, R. van den, Brennan, N., Hyllseth, B., Kamerlin, C.L., Kohl, U., O'Carroll, C., O'Neill, G., European Commission, Directorate-General for Research and Innovation, 2017. Providing researchers with the skills and competencies they need to practise Open Science.

Annex1 - Web graph points for subject insertions

European Commission

Open science

https://ec.europa.eu/research/openscience/index.cfm

https://ec.europa.eu/research/openscience/index.cfm?pg=openaccess

https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud

Digital single market

https://ec.europa.eu/digital-single-market/en/news/communication-towards-common-european-data-space

https://ec.europa.eu/digital-single-market/en/policies/open-access

https://ec.europa.eu/digital-single-market/en/open-science

https://ec.europa.eu/digital-single-market/en/open-data

https://ec.europa.eu/digital-single-market/en/policies/advancing-digital-science-and-infrastructures

https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2018:0232:FIN (COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS "Towards a common European data space" COM/2018/232 final)

https://ec.europa.eu/digital-single-market/en/content/data-policy-and-innovation-unit-g1

https://ec.europa.eu/digital-single-market/en/guidance-private-sector-data-sharing

https://ec.europa.eu/digital-single-market/news/final-report-science-20-public-consultation

https://ec.europa.eu/digital-single-market/en/news/open-innovation-open-science-open-world-vision-europe

The transition towards an Open Science system -Council conclusions (adopted on 27/05/2016) http://data.consilium.europa.eu/doc/document/ST-9526-2016-INIT/en/pdf

The European Research Area : advancing together the Europe of research and innovation - Study https://publications.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/5641328c-33f8-11e9-8d04-01aa75ed71a1

Recommendations by theERAC Standing Working Group on Open Science and Innovation (SWGOSI) on open science and innovation http://data.consilium.europa.eu/doc/document/ST-1216-2018-INIT/en/pdf

Riding the Wave: How Europe can gain from the rising tide of scientific data https://ec.europa.eu/digital-single-market/en/news/digital-agenda-unlock-full-value-scientific-data-high-level-group-presents-report

Towards better access to scientific information: Boosting the benefits of public investments in research https://ec.europa.eu/transparency/regdoc/rep/1/2012/EN/1-2012-401-EN-F1-1.Pdf

H2020

https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-dissemination_en.htm

RDA

Research Data Alliance https://www.rd-alliance.org/

LIBER pack

https://libereurope.eu/strategy/digital-skills-services/

https://libereurope.eu/job-descriptions/

https://libereurope.eu/strategy/digital-skills-services/digitalskills/

https://libereurope.eu/blog/2019/07/11/open-science-essentials-towards-a-skill-set-and-showcases-at-liber-2019/

LIBER Digital Skills Working Group: Case Studies on Open Science Skilling and Training Initiatives in Europe https://zenodo.org/record/3251731#.XRCpbfkzaM9

Let's build the skills ! LIBER Digital Skills WG 2018 Workshop https://zenodo.org/record/1308131

EOSCpilot & LIBER Webinar: Skills and Training in Open Science and the EOSC ecosystem https://zenodo.org/record/2247650

Social Sciences & Humanities Open Cloud: What's in it for research libraries? https://zenodo.org/record/3364505#.XYiKxfkza70

League of European Research Universities pack

https://www.leru.org/publications/leru-roadmap-for-research-data

Relevant Projects

EOSC pilot

https://eoscpilot.eu/themes/wp-7skills/skills-landscape-analysis-and-competence-model

https://eoscpilot.eu/themes/wp7-skills

D7.3: Skills and Capability Framework https://eoscpilot.eu/content/d73-skills-and-capability-framework

D7.1: Skills landscape analysis and competence model https://eoscpilot.eu/content/d71-skills-landscape-analysis-and-competence-model

LEARN Project

http://learn-rdm.eu/en/about/

http://learn-rdm.eu/wp-content/uploads/RDMToolkit.pdf

FAIR4Health

https://www.fair4health.eu/

Good practices

http://libraryguides.helsinki.fi/oa/eng

Data Support at the University of Helsinki assists researchers in the management of research data. Data Support is a network of experts from the university library, IT Services, Central Archives, Research Affairs, Personnel Services, and Legal Affairs.

https://www.helsinki.fi/en/research/research-environment/research-data-management

The Centre for Digital Scholarship collaborates closely with researchers, faculties, national and international colleagues, and other centres of expertise to facilitate and support Digital

https://www.library.universiteitleiden.nl/research-and-publishing/centre-for-digital-scholarship

https://lib.ugent.be/en/info/open Scholarship. Universiteitsbibliotheek Gent

For the entire university, UGent has implemented an "Immediate Deposit/Optional Open Access" mandate for scientific publications as of publication year 2010. As a consequence, all research output is registered in the UGent Academic Bibliography and Institutional Repository with an electronic full-text attached. Moreover, UGent asks researchers to make the full-text open, whenever possible.The library's mission has been formulated accordingly: "Facilitating open knowledge creation".

Training opportunities and good practices

https://www.rd-alliance.org/blogs/how-build-community-data-champions-six-steps-success.html

http://www.datainfolit.org

http://library.umassmed.edu/necdmc/index

https://www.dataone.org/education-modules

https://mantra.edina.ac.uk

https://www.schoolofdatascience.amsterdam/education/

https://eliademy.com/app/a/courses/b55b4d7020

Scaffolding for data management skills: From undergraduate education through postgraduate training and beyond https://purr.purdue.edu/publications/2186/1

https://www.tudelft.nl/en/library/current-topics/research-data-management/r/data-stewardship/

ANALYSIS OF THE DEGREE OF INFORMING OF THE USERS OF THE UNIVERSITY LIBRARY CONCERNING THE INSTITUTIONAL REPOSITORY

UDC 025.4:004.91

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Elena RAILEAN, Ana GUDIMA

Introduction. In the digital age, the commitment of a scientific publication is to circulate as much as possible, including exploring new publishing technologies and economic models to improve access to scientific publications. Open Access (OA) can stimulate the exchange of information and knowledge in the education and science communities.

University libraries are at the forefront of the Open Access to information movement. OA has numerous impacts on university libraries: economic, technological, information collection and management, reference services, information literacy. For university libraries OA is a prerequisite for surviving and prospering at the present stage. Due to the strong link between open access and the mission of the library, it is not surprising that libraries are involved in a wide range of activities related to open access (Ţurcan 2012).

Institutional repositories, a new phenomenon in the scientific community of the 21st century, become an indispensable element in the scientific activity of any university. Repositories, which have emerged in the information space of the Republic of Moldova in the last decade, are becoming more and more popular among teachers, researchers, PhD and masters students, specialists in libraries.

The advantages of the institutional repositories are: opening, creating a unitary electronic collection of scientific materials of universities, promoting them in the international scientific community, promoting researchers and their publications, increasing the citation index of scientific articles, etc.

By creating and disseminating new knowledge, universities accumulate the intellectual capital of the country, which also includes

research capital. By taking the first steps in creating institutional repositories within the projects, the university libraries face some difficulties in creating, managing, completing and promoting this innovative information product (Волкова 2014).

Any new product based on modern technologies is difficult to implement on the market, even if its advantages are obvious. The society is accustomed to solving the same problems in the traditional way and it is difficult to convince it to adopt a new way to meet the existing need.

To create and successfully develop institutional repositories significant resources are needed: intellectual, financial, creative, time. As a rule, the creation of institutional repositories in the Republic of Moldova was initiated within the international projects. Further the objectives regarding the development, management and promotion of electronic archives will be assumed entirely by librarians (Railean 2017).

The management of the institutional repositories is successfully done, relying practically exclusively on the enthusiasm of the librarians, without financial and technical support from the university management.

We also mention that in the last 3 years in the academic community there has been an increased interest in open systems and platforms that ensure the visibility of institutions. Thus, the Doctoral School of the Academy of Economic Studies of Moldova obligated all PhD students to publish their articles, abstract of dissertation thesis and doctoral thesis in the IREK institutional repository. Due to such actions, the coordination of the activity of the different departments of the institution regarding the promotion of this innovative information product is intensified [1].

Specialists in university libraries use various tools to promote this informational product for all categories of researchers and teachers, including among university administrations, but promotion techniques do not always meet current requirements and need adjustments.

Identification of the degree of informing of the PhD students and of the thesis supervisors regarding the institutional repository. There is an assumption that some of the information about the repository and its potential does not reach the recipients, which requires optimization of the promotion program of the IREK digital repository.

In a survey (focus group) conducted in 2018, were identified the level of informing and the respondents' opinions regarding the institutional repository of AESM - IREK. PhD students and thesis coordinators were interviewed; the survey included seven questions about the IREK repository.

The aim of the study was to popularize the IREK institutional repository and, therefore, to optimize the activity of publishing in open access of AESM employees. The objectives of the study were:

1. Identification of the degree of informing of the PhD students and of the thesis coordinators regarding the IREK institutional repository;

2. Increasing the level of informing of the academic community on the advantages of publishing in open access;

3. Determining respondents' preferences regarding channels and forms of information promotion;

4. Developing of a program to promote the IREK institutional repository.

To the question *"Do you know about the existence of the institutional repository on the AESM Scientific Library website?"*, 12 respondents answered in the affirmative, 3 - negative. Among the respondents who answered negative are two thesis coordinators and one PhD student. Thesis coordinators mentioned that they are integrated in several scientific activities compared to other groups of users. For these reasons, the information about the IREK institutional repository was not received by them. A PhD student who did not have the information about the existence of the institutional repository of AESM was from the first year of part-time studies and stated that he has not yet encountered the publication online in open access.

Analysis of the answers to the question *"Where did you find out about the existence of the institutional repository in your organization"* configured the following results *(Fig. 1):*

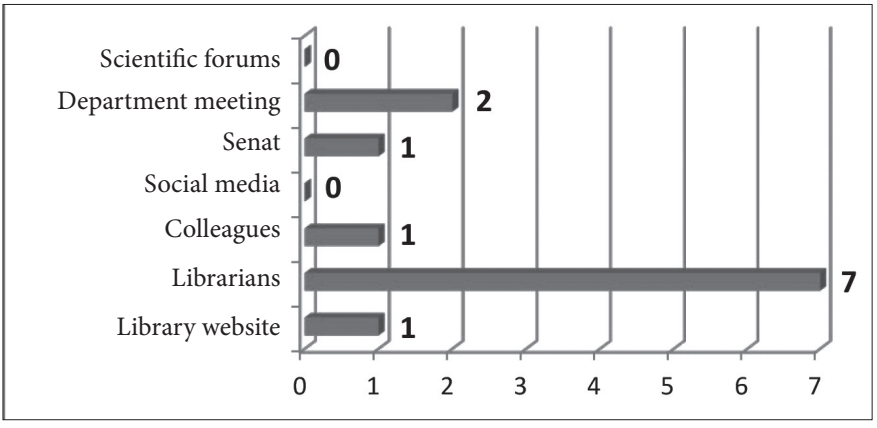


Fig. 1: The source of information about the existence of the institutional repository of the organization. N = 15

Thus, it can be stated that the main source of information about the IREK institutional repository are the librarians, who constantly inform the PhD students both at the lectures within the Information Literacy course and through individual consultations on the new information product and its implementation in the academic practice.

The meetings of the departments (chairs) are also used by librarians as a communication channel, through which the digital repository is actively promoted. Thus, informing of 2 respondents through this channel has reached its purpose.

According to the respondents, the library site is important for promoting informational products, but they do not have enough time to study it.

The University Senate is also an effective platform for promoting the IREK institutional repository, but it works only for the members of this institutional forum.

Unfortunately, social networks are practically not involved in promoting of the institutional repository, although, according to experts, this channel is currently the most popular and most effective for promotion. The advantage of using this channel is the accessibility, the ease of access, the possibility of monitoring and the feedback.

From the answers of the respondents to the *question "What do you think about the advantages of the institutional repositories?"*, the knowledge of the PhD students and thesis coordinators regarding the IREK institutional repository and its advantages were identified. The interviewees' opinions were distributed as follows in Fig. 2:

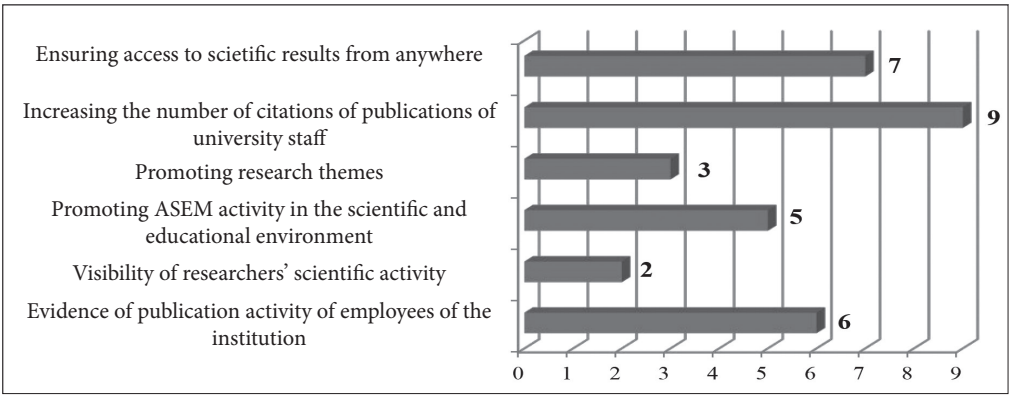


Fig. 2: Respondents' opinion on the advantages of the IREK institutional repository. N = 15

Therefore, by promoting the scientific communication, the institutional repositories, according to the majority of the respondents, have such basic advantages, as: increasing the degree of citation of the scientific works of the university staff (9); offering access to research results anywhere in the world (7); the statistical record of the publishing activity of the employees of the organization (6).

To the question *"Do you have the experience of using the IREK institutional repository?"* - 7 respondents mentioned that they had such a practice, 8 people answered negative.

Thus, we can see that the respondents have sufficient theoretical knowledge about the open digital archives, but are using the IREK institutional repository a smaller number of interviewed. Obstacles related to the publication of articles in the IREK institutional repository were identified in answers the question *"What prevents the activity of publishing in the AESM institutional repository?"*. Thus, the following results were obtained (Fig. 3):

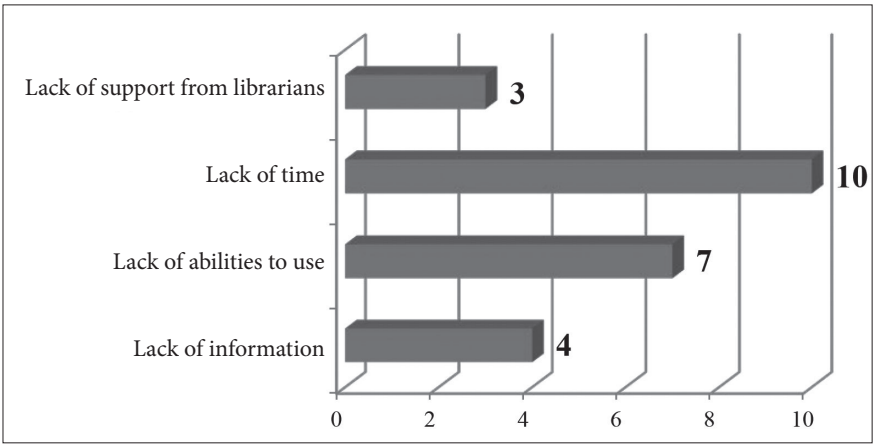


Fig. 3: Barriers that impede the publishing activity in the AESM institutional repository. N = 15

The main obstacle, according to the interviewees, is the lack of time (10 respondents). In order to publish their articles, the researchers use the specialist in the library, whose functions include publishing the articles in the institutional repository. Self-archiving as a process would save researchers time and increase publishing activity in open access.

The lack of practical skills also prevents researchers from publishing their articles in the IREK institutional repository (7 respondents). In this

context, libraries need to pay more attention to individual consultations and to develop training and guidance materials, both in traditional and electronic format.

The current information and the permanent support from the librarians, according to the respondents, would help to overcome the barriers in publishing the articles in the institutional repository of AESM.

The researchers' answers to the question *"What would contribute to the efficient use of the IREK institutional repository?"* were distributed as follows in Fig. 4.

Thus, according to the opinion of the research subjects, the most important activity is the constant advice and feedback from the librarians (11 respondents); permanent informing by the library (10); various educational materials and tutorials on the library website (8).

The promotion of the institutional repository, as a complex innovative product, must be based on a training program for its use. If the information product is complex and incomprehensible to the user, it will not be requested by the university community. Therefore, constant counseling and feedback from librarians represents the starting point in popularizing the IREK institutional repository among scientists and PhD students.

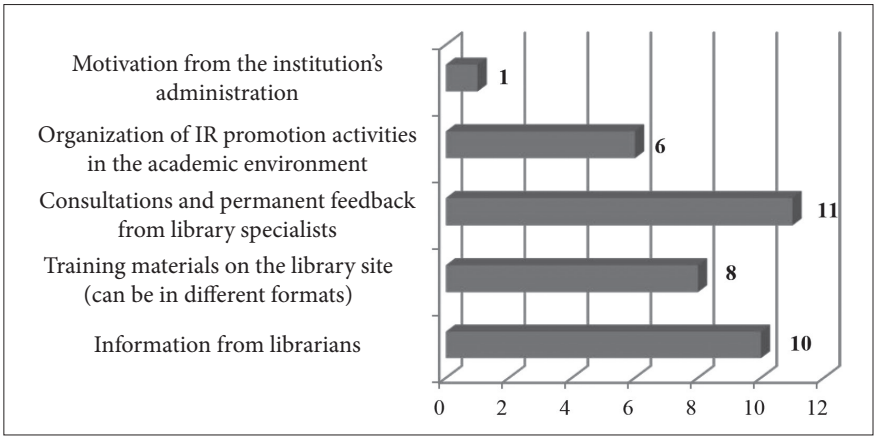


Fig. 4: Mechanisms that facilitate the effective use of IR of AESM. N = 15

Respondents suggested the following recommendations for promoting the IREK institutional repository among AESM researchers:

• the active promotion of the institutional repository at all scientific forums of the university;

• using of social networks to inform about the institutional repository;

• motivating PhD students, who publish more frequently the research results in IREK;

• use of modern communication tools: e-mail, Viber, Messenger to promote the repository;

• trainings on self-archiving to optimize the publication in IREK.

Also, for the active promotion of the IREK institutional repository, the following activities can be proposed:

Cross-media marketing campaigns conducted in partnership. These actions are like the networks of friends and acquaintances we have on different social media platforms. Individual users use them to expand their network of friends and followers, while cross-media marketing broadens the potential audience of the business. Joint promotional actions could be undertaken with partner institutions that have similar products that complement each other with IREK, organized for the same target audience.

Cross-media marketing includes traditional advertising and digital techniques, for example web banners, billboards, social media advertising and magazines or newspapers. 3 effective cross-media marketing strategies will be used, which are: cohesive and consistent message that will be understood by all customers; clear and efficient call-to-action if we want the user to act immediately after receiving the messages; personalized advertisements that help build a trustworthy brand and identity that stands out.

Capitalizing feedback from users. It is necessary to establish and develop relationships with users. It is important to offer them the opportunity to express their opinion regarding the institutional repository, its functions and possibilities, to participate in surveys, to get involved in the communication actions of the library; to challenge them for a response to messages. We can conduct online surveys on the library website and request the evaluation of some services and functionalities of the institutional repository. At the same time, we can obtain the consent for the distribution of the news and the shipment of the additional training materials.

Contests, questionnaires. This format of promotion will motivate the young researchers and will contribute to the development of the publishing skills in the institutional repository.

These low-cost marketing methods do not require a lot of financial costs; instead they require the investment of other resources, such as energy, creativity, imagination and knowledge of the specialists. It is

necessary to promote not only the IREK institutional repository and its benefits, but also the effect of open access publishing as an optimal and inexpensive way of entering the scientific world, in order to achieve success in the evaluation and certification of scientific staff.

Conclusions. Libraries must play an important role in the development of IR, based on the needs and support of faculties, simplifying the process of submitting publications, training of users etc. The key role of the faculty members is to present knowledge in the form of research results in the institutional archives. The institutional roles also include the introduction of the compulsory policy for submitting the works and the formulation of other documents for the operational management of the IR.

Most respondents have sufficient knowledge about the institutional repository of AESM - IREK, the main source of information are librarians. Not all respondents have the experience of publishing in the institutional repository due to the lack of knowledge and practical skills. In this case, more attention should be paid to individual consultations and practical training materials, both in traditional format and in electronic form.

The main barrier in the publishing activity in the institutional repository is the lack of time. In this context, self-archiving would save researchers time and stimulate online publishing. The respondents suggested a more insistent promotion of the institutional repository IREK among AESM researchers, at scientific forums, to intensify individual consultations, to use new online information tools. The motivation of the PhD students to publish in IREK will also contribute to increasing the popularity of the AESM institutional repository.

Libraries actively participate in the creation and maintenance of open electronic archives, promoting the benefits of electronic archiving among researchers. New models of scientific communication improve access to information and ensure efficient use of digital content. Open archives offer librarians a more active institutional presence, establishing lasting partnerships with faculties.

The university library will play an increasingly important role in ensuring the quality of academic research by providing training on information literacy, academic writing and digital culture in the field of research.

IR (Institutional repositories) provides to librarians an increased visibility and active institutional presence. Through IR, the library

establishes lasting partnerships with faculties. Libraries can ensure the skills needed to develop and maintain an effective IR and act as agents of change in support of Open Access implementation. It is a way to maximize the availability, accessibility and functionality of scientific research results. To make the IR more widespread, the roles and responsibilities must be assumed by different categories of people within the institution.

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RESEARCH DATA SERVICES IN NORWEGIAN ACADEMIC RESEARCH LIBRARIES

UDC 025.4.036:027.7(481)

Karin RYDVING

Introduction

The national research policy guidelines in combination with research funding requirements for data management plans, and open access to research data, will result in increased pressure on research institutions to decide how research data should be handled at Norwegian research institutions.

In this chapter, I wish to present the status of research support services for research data in Norwegian university and college libraries based on my previous study (Rydving, 2019).

The chapter focuses on the following issues:

- What services are offered?
- How are skills and collaboration issues handled?
- What is the attitude of universities and university libraries to research data services?

Background and previous research

The European Union (EU) has over the past ten years accelerated the work of open science (European Commission, 2012, 2016a, 2016b, 2019). This has affected guidelines for access to research and the allocation of research funding. Norway adheres to these transnational guidelines and they are reflected in Norwegian research policy. In order to apply for EU and Research Council funding programs, requirements for data management plan and sharing of results are set. The funding organizers act as an impetus for open science. Regardless of the financial framework, however, all institutions have responsibility for supporting their researchers in handling of data (Ministry of Education, 2017).

The Norwegian government has gradually adhered to EU's goals

for open science in Norwegian research policy. In 2017, the government presented a National strategy for making available and sharing research data (Ministry of Education, Science and Culture, 2017).

In its updated Policy for making research data available (2017), the Research Council has strengthened requirements for allocations of research funding with new elements on how research data should be stored and searchable, and all research projects with funding from the Research Council must have a data management plan (Research Council, 2017; Ministry of Education, 2017). The research institutions are responsible for evaluating and approving the project's data management plans.

Structure, collaboration, competence and service development

Overall, research data is highlighted as a complex growth area in which libraries should expand their role, and develop into a core element in their mission to support their research environments (Corrall, 2012; Lewis, 2010; Linde et al., 2014; Tenopir, Birch & Allard, 2012; Tenopir et al., 2017a). Cox & Pinfield (2013) point out that factors such as difficulties in establishing good data management infrastructures can be challenging. Research funding mandates, and a trend for open science can help to support library development in this area.

The role and motives of libraries

Libraries' participation in data management is discussed at both a strategic and operational level. There are different perceptions about whether the library is the right actor to handle research data.

On the one hand, development and work with research support services for research data can be regarded as a crucial opportunity for librarians to offer valuable support, and contribute as a partner, to researchers at their own institution (Corrall, 2012; Kim, 2013). Research data can be viewed as an integral part of the research process, and thus a natural part of the library's mission as an established knowledge organizer. (Corrall, 2012; Fransson et al., 2016; Lewis, 2010; Linde et al., 2014). With the expertise the libraries already have in scientific communication, there is an opportunity to play a key role in developing the field (Fransson et al., 2016). However, in order not to lose pace and position, it is important that the libraries profile themselves by engaging in data management issues, and making themselves visible in the form of new services (Linde et al., 2014, p. 218). Libraries need to realize that researchers have a real need for support services working with research data, and not wait for an order from their own institution to get involved (Tenopir et al., 2015).

Although research data services by their nature may seem unusual, several studies claim that there are strong links between today's library and new research data management services. Open science can be seen as a natural extension of the library's long-standing commitment to open access (Corrall, 2012, p. 108). With the emergence of the digital library, fewer and fewer researchers are using the physical library. Support services for research data may be the link that libraries need to reconnect too the researchers (Corrall, 2012; Lewis, 2010). Corrall (2012) describes work with research data as a crucial step in the development of professional practice for libraries, and a paradigm shift in work with collection development and service delivery.

On the other hand, the theme is so extensive and multifaceted in terms of infrastructure, expected skills and stakeholders that the library alone cannot solve the issue (Corrall, 2012; Lewis, 2010). Several authors point to the complexity of research support services, and the topic is discussed in the context of a "wicked problem" (Cox, Pinfield & Smith., 2014; Tenopir et al., 2017a). It is recognized as a comprehensive task to maneuver existing and new needs for skills and services in the library, in order to achieve good routines, with the goal of creating training programs for their researchers. This development takes place in an environment where financial resources are limited and time is perceived as scarce (Cox et al., 2014; Tenopir et al., 2017a).

Needs of libraries

Several previous studies specifically examine the need for resource and skills development to enter into the work of research data (Cox, Verbaan & Sen, 2012; Tenopir et al., 2012). Knowledgeable library staff is needed, who is given the opportunity to learn new skills (Tenopir et al., 2017a). Here, library directors have a responsibility to clarify which services are to be offered, and to identify the development needs of their own staff (Tenopir et al., 2015).

What support services for research data are offered?

Overall, previous research examines how, and to what extent, librarians participate in research data management services at their institutions, and to what extent these services are considered strategic priorities. The results are conclusive and show that it is mainly the larger research-intensive institutions' libraries that have operational services in particular advisory services. However, most consider the area as strategically important, and necessary to develop services (Cox & Pinfield, 2013; Tenopir et al., 2012; Tenopir et al., 2015; Tenopir et al.,

2017a). It may seem that, despite a desire to capture positions in both advisory and technical research support services for research data, the "soft" services are dominant so far.

Based on the DataOne project, whose mission is to ensure the preservation and availability of science, there are several international studies among academic libraries on how to build culture and skills to manage research data (Tenopir et al., 2012). Tenopir et al. (2012) conducted a survey of 331 academic libraries in the US and Canada, with a response rate of 63%. The purpose of the study was to map the status of the libraries, and their plans regarding research data services. The results showed that it was mainly institutions with a doctorate degree whose library offers research support services. Although there wasa small number that offer services then, up to a third had plans to offer research support services within 2 years. Different types of teaching and counseling services were more common than practical or technical storage services.

Carol Tenopir built on her previous survey (Tenopir et al., 2012) in a study she and colleagues did of 22 European countries, all of which are members of LIBER (Tenopir et al., 2017a). 119 library managers (including three Norwegian libraries) answered, a response rate of 35.7%. Tenopir et al. (2017a) expected to find a high degree of commitment to work on policy issues, as many countries in Europe have been early with research policy guidelines for open science. Also among European libraries, advisory support services are more common than technically oriented. Consultative functions on campus are the most common service, followed by work on policy issues and course activities. Of the technical services, support for research data services is most common. A significant number of respondents (90.8%) collaborate in some form with entities outside the library to offer services, or develop policies, related to research data. Many of the library managers support existing staff to increase their knowledge in the field, while others require new staff. Fewer than half of the libraries have some form of their own policy, which may indicate that the libraries are at an early stage of service development. The authors link this to the fact that very few libraries state that they are involved in direct management of data sets.

Method and material

The empirical material to elucidate the question regarding research data services in Norwegian academic libraries is the result of a questionnaire based on a previous study (Tenopir et al., 2017b). However, my material is small and the representativeness (in statistical sense)

is low. My study (Rydving, 2019) deals only with Norwegian academic libraries, which are affiliated with parent institutions that are members of the University and University College Council (UHR). They are divided into 10 universities, 9 scientific colleges, and 13 colleges. Other research institutions, and their possible libraries are not included in the study.

The survey (Rydving, 2019) covered 17 questions and was consistent with Tenopir et al. (2017b) with the exception of an adaptation of the two initial questions to categorize the institution type and number of students according to Norwegian conditions. Furthermore, it was possible to provide additional information on two of the questions I had added.

The invitation to participate in the voluntary and self-reported questionnaire was sent as e-mail to the library directors. They were asked to respond on behalf of the library, with one response per institution. The invitation began with a descriptive text and an open link to the questionnaire, and I sent three reminders to collect the most number of responses. The respondents could (with the exception of the first two classification questions) choose whether they wanted to answer the respective question. As a result, there are different numbers of answers to the various questions, but the majority of the questions are answered by the respondents. The questionnaire was in English, which may have been a barrier. Examples of other obstacles may be lack of time and interest in the theme.

I used a web-based tool, Web schema, for the survey. The collected data were analyzed using Excel. My material from the questionnaire consisted of primary data in the form of anonymized respondents from the various institutions. The study was a descriptive cross-sectional study (Johannessen, Tufte & Christoffersen, 2016).

A total of 19 institutions out of 32 invited (response rate 59%) responded to the survey which was available 8 weeks in the fall of 2018. A review of the distribution between the number of students in relation to the size of the responding institutions shows libraries at colleges with fewer than 2,000 students have the biggest dropout in the survey. This means that even though the response rate amounts to 59%, my collected data are skewed, with a focus on institutions with more than 10,000 students. This may indicate that institutions that already have an interest in the field are also those who have responded.

Results

Types of Services Offered and Planned

The results show that respondents (19), with the exception of one, answered that they either already offer at least one research support

service for research data (14), or plan to do so (4).The answers to the question about which research support services for research data that the library offers are divided into two groups: 1) consultative research data services, 2) technical research data services. The respondents gave a total of 264 markings for which, and to what extent, they offer the services requested. Figure 1 presents responses from the first group and Figure 2 the second group.

In the advisory services group, Figure 1 shows that the three most common services consist of 1) participation in work with policy and strategy documents (68%), 2) dialogue with colleagues at the library, or campus, on research support services (58%), 3) collaboration on research support services within, or outside, own institution (47%). Of the technically oriented services (Figure 2), the three most common services are: 1) support linked to archives, information retrieval and access (37%), followed by 2) metadata management (37%), and 3) organization of archiving data sets (32) %). Overall, the most common services are found in the group that offers dialogue-based services.

Looking indications that a service should be provided within 12 months, it is mainly within the advisory services group that the libraries wish to start up an activity (Fig. 1). Here, support for the preparation of data management plan (37%) is the most frequent. However, it is the selection of data and data sets for archives (39%), in the group of technically oriented services (Fig. 2) that individually make up the largest proportion. The services that the libraries at least plan to establish are of a technical nature, linked to the management and maintenance of data sets in archives.

Whether your library has policies and / or procedures associated with research data services is examined, 11 libraries (58%) responded that they do not have. 8 (42%) said they have. Some of the libraries specifically stated that they have their own processes, or relate to the institution's or international processes and standards.

Staff Capacity and RDS involvement by discipline

On the question who in the library has primary leadership responsibility for research data services and programs, the answers show that the least common is that one individual is in charge (6%), or the research data administration (6%). A department in the library (12%), or a group (29%) is more usual. However, the most common is a combination of the different options (47%). Two respondents specifically state that responsibility is placed at the departmental level.



Fig. 1: Consultative research data services (RDS), n=264.

Regarding who in the library provides research data reference / consultation / instruction services to researchers, 61% responded that it is dedicated staff.

Figure 3 shows that the libraries use several strategies to manage the capacity needs of staff with knowledge in research data services. Of the 16 responding libraries, 12 (75%) stated that they had already redeployed staff. Furthermore, 10 (63%) planned to make changes. Few had plans to recruit new staff and even fewer had actually recruited specialized staff to work with research data services.

15 libraries (83%) stated that they have offered employees skills development in the research data field. With regard to the activities that have been supported, Figure 4 shows that there were several possibilities. Participation in conferences and workshops dominates, followed by courses related to the theme and local activities.

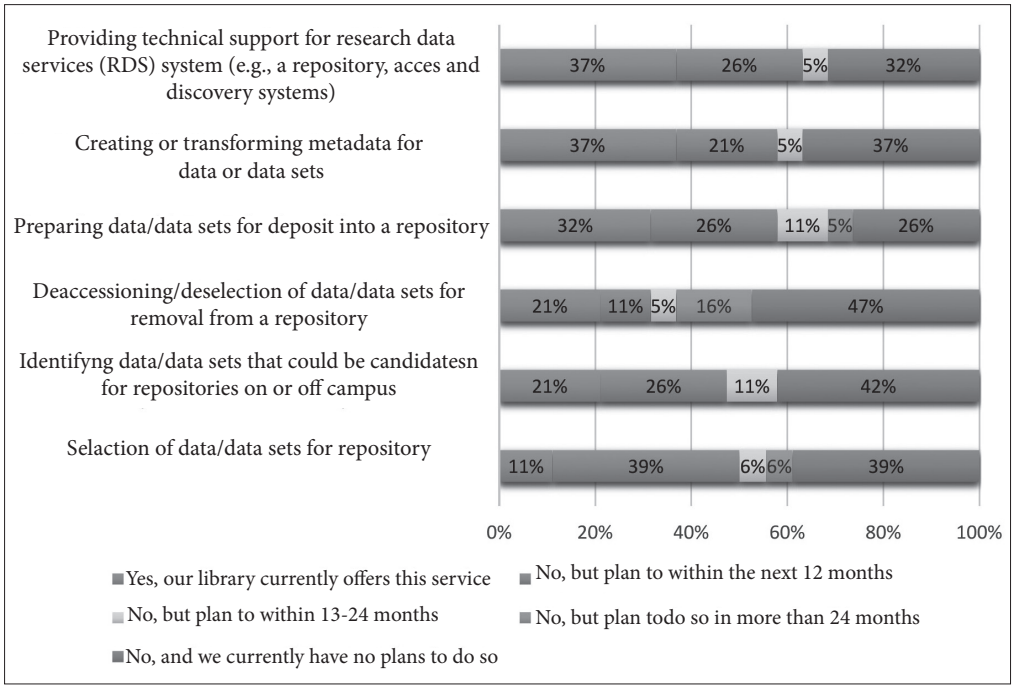


Fig. 2: Technical research data services (RDS), n=264.

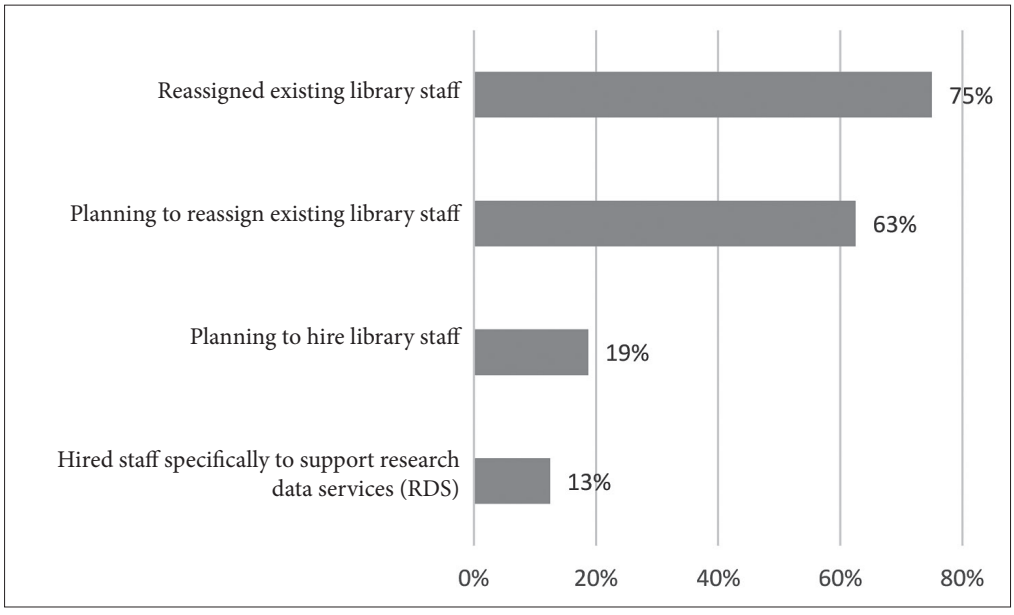


Fig. 3: How has your library developed staff capacity for research data services (RDS)? (Check all that apply), n=27.

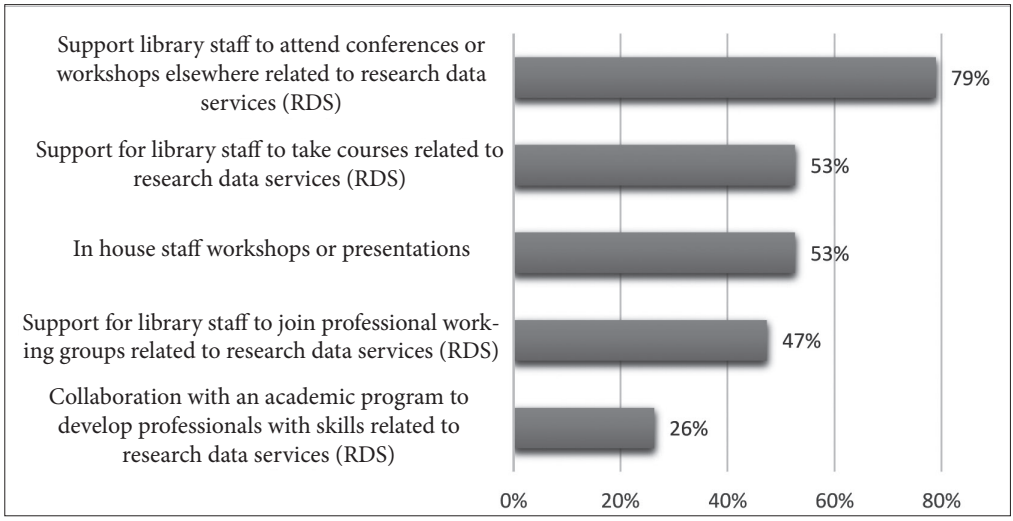


Fig. 4: Opportunities for library staff to develop skills related to research data services (RDS). (Please check all that apply), n=49.

Collaboration

Collaboration is identified as a crucial factor in being able to offer research data services. A total of 16 (89%) libraries answered "yes" to the question of "Is your library collaborating with other units or offices in your institution regarding research data services?" "Of the units that you collaborate with", where multiple responses could be given, 16 respondents (47%) stated that they collaborate with the research administration and 11 (32%) that they collaborate with the IT department (Fig. 5).

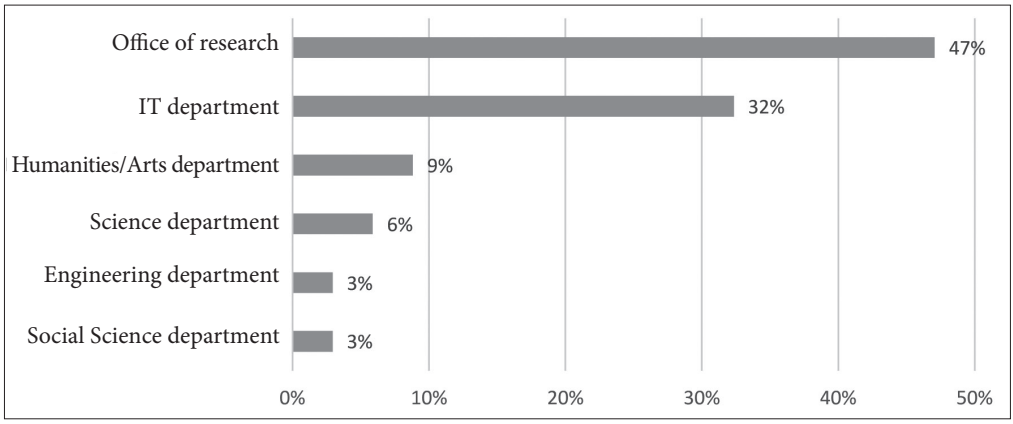


Fig. 5: Does your library collaborate with other units or offices in your institution regarding research data services RDS? (Check all that apply), n=34.

There were 10 respondents (52%) who stated that they cooperate with other institutions. The most common partners are other universities (37%) and government organizations (37%).

Approach to research support services for research data among library directors

Subject to the fact that my data has an emphasis on larger institutions, it is mainly a positive attitude to support services for research data among library directors. Figure 6 shows that of the 18 libraries that responded to the alternative, 9 (50%) strongly agree that the library needs to provide support services for research data to ensure its relevance at its own institution. Similarly, 8 (42%) consider it very important that the work of the libraries also includes data set management. Furthermore, 7 (37%) strongly agree that it would be a disadvantage to researchers at their institution if the library did not offer research data services. There is at least some degree of agreement as to whether a decision not to offer research data services will affect the library's financial allocation.

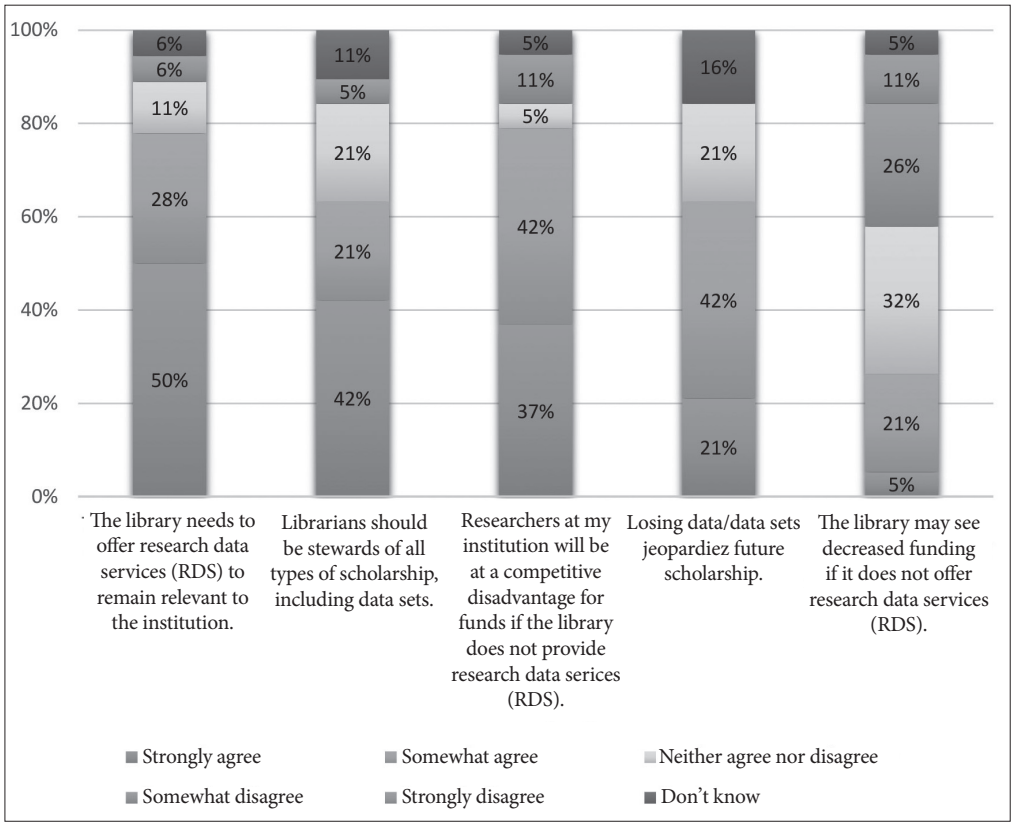


Fig. 6: The following group of statements relates to your opinion on library involvement in research data services (RDS), n=93.

Conclusion

My research points to the fact that research support services are already an accepted offer in the Norwegian academic libraries, with clear and ambitious plans for further development. Advisory services predominate over technical services.

The results also indicate that the libraries are in the midst of a change process in terms of internal competence development and division of labor. The libraries are willing to provide support for skills development activities. Skills development is mainly done by staff attending seminars and conferences outside their own institution. When it comes to possessing expertise in the research data field, the existing staff is expected to handle the need. It is most common for the services to be assigned to (a group of) dedicated staff.

With regard to collaboration, the library appears to be an active partner, but there is more to be gained in the actual dialogue with the scholars, mainly within own institution but also outside. Virtually all libraries collaborate with other departments within their own institution on support services for research data. About half of the libraries collaborate outside the university, primarily with other universities or government agencies.

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INTERNATIONAL PROJECT AS AN INNOVATIVE FORM OF ACTIVITY OF A MODERN LIBRARY

UDC 005.8:027.7(478+481+498)

Elena RAILEAN

Modernization of modern libraries at the present stage becomes not a whim, not a desire to follow the fashion, but a necessity for the libraries survival and development.

How do we fit into the modern picture of the world and where is our place? How can we succeed in the process of the libraries modernization, and what aspects of the library's activity do they relate to? In our opinion, it is necessary to modernize the library as a system. A systematic approach allows us to take into account all the relationships in the library activity.

Thirty years ago, the founder of a systematic approach in the library sphere, Y. N. Stolyarov put forward the concept of an essential model of a library as a system consisting of four main elements: *the library fund, a contingent of users, material and technical base and library personnel, each of which fulfills the same essential role or function*[1].

Today, there are a number of opinions considering the symbiosis of two interpenetrating systems: the socio-economic system and the "library" system.

For example, Bobrov considers modern large libraries and information centers to be complex socio-economic and industrial-technical systems that operate in a constantly changing environment.[2]

Elements of this system - people (man-group-society) and nature can be comparable with elements of a socio-economic system.

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The nature of the relationship in the socio-economic system is determined by the nature of the relationship in the library system, but the cause-effect relationships in these interactions are quite complex. According to Eric Trist, in modern conditions, the library should be considered as a complex, open, nonequilibrium, self-organizing socio-technical system that continuously adapts to changes in the external environment (Researchers about organizations).

Thus, to the modernization of libraries had a significant effect, it should be applied to the entire library system, covering such aspects of its activities, such as: the development of staff on the basis of well thought-out motivational system, its competencies and facilities, library management optimization, modernization and diversification of library services, infrastructure and resource base development, repositioning the library in the eyes of users and senior administrators, lobbying the library interests, project activities.

At the same time, the library is a subsystem of the social and cultural system of the country, and its activity is greatly affected by the different categories of users, organizations, political-legal and scientific environment, contact audiences and others, i.e., the external environment (Fig.1).

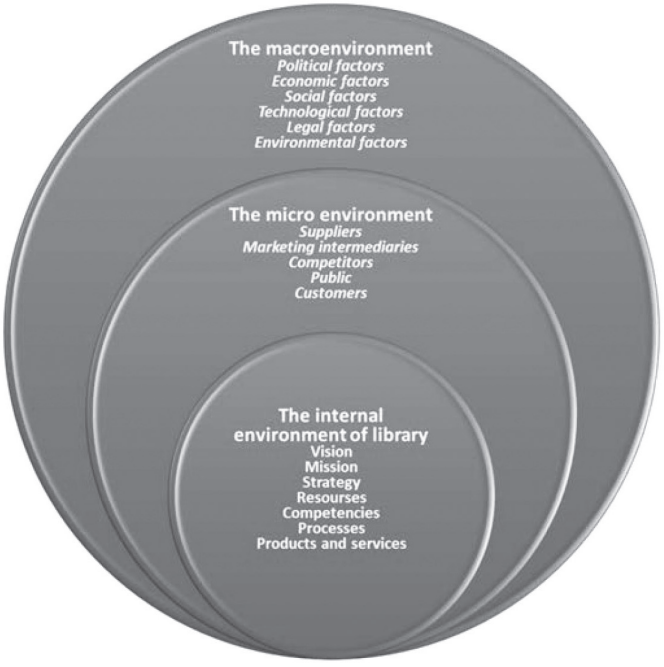


Fig. 1: Library as a system

Modern university libraries are trying to actively interact with the external microenvironment and adapt to the macro environment, realizing that only this active interaction contributes to the prosperity of any organization. The development of mechanisms of influence on the external and internal environment, the search and finding of this toolkit becomes a key competitive advantage of any library.

Thus, project activity becomes that competitive advantage, an innovative form of activity that contributes to the modernization and development of university libraries. Therefore, the libraries of the country tend to be involved in the project activities, despite the difficulties in the implementation of the project and additional workloads.

Project activities of university libraries in the country contributes greatly to the development of libraries provides new knowledge, new experiences, and help in the process of modernization and adaptation to the environment. Projects often affect only some specific points in the work of the library, positively influencing its development, but contribute little to the development of the entire system. So, for example, the first project experience of the 90s - some small projects - were more often focused on technical equipment, the purchase of books. The results of such projects gave a short-term effect, that is, they were fragmented: print media and technology quickly became outdated and slightly influenced the development of the entire system.

The exception are large, multi-year projects, which significantly influenced the development of the entire university library system of the country.

These projects during the implementation process affected various aspects of library activities and contributed to the development of the library as a system.

One of such projects was the project "Modernization of academic library services in Moldova" (2016-2019), which became a logical continuation of cooperation between the Eurasia Foundation, and experts and specialists of library science from Norway, Romania and Moldova.

Cooperation began in 2012 with the project "Development of New Information Services for Moldovan Higher Economic Education", which was implemented in partnership with the Moldavian Academy of Economics, Moldova, the University of Bergen, Norway and the University of Transylvania from Brasov, Romania. The project was based on consultations of international experts, study visits, training, exchange of experience, studying the features of library activities in the field.

The project « Modernization of academic library services in Moldova » (2016-2019) became global, unparalleled project that brought together 18 university libraries of Moldova, headed by Scientific Library AESM.

The aim of the project was the cooperation, training and spreading of advanced knowledge about library activities, modernization and new services of advanced libraries in Europe. An important task was to erase the differences between the training of library specialists in metropolitan and regional universities, equalizing technical and other opportunities in the development of scientific libraries of universities.

Within four years, the project activities systematically developed the various subsystems and the direction in partner libraries activity:

- ✓ Library staff,
- ✓ Library Resources,
- ✓ Material and technical base,
- ✓ Users of the library.

So, for the development of library personnel, within the framework of the project, 9 workshops were implemented, which concerned various areas and competencies in the field of library business: Information Literacy, marketing, strategic planning, scientometrics, etc. The material was presented creatively, using gaming techniques. There were strengthened and developed language skills in the field of English acquired in the framework of the previous project.

As part of the project, 3 summer schools were planned and conducted:

- ➢ „Open Access and Open Sources for Librarians",
- ➢ „Information Literacy",
- ➢ „The Reference Librarian in the Digital Age".

Due to the implemented measures, the professionalism of library specialists has increased and updated. Through seminars, trainings and summer schools, a single space was created for professional discussions; professional relations of librarians from different universities were formed and strengthened.

All activities of the personnel development project were based on deep sociological research in order to identify the problems and needs of libraries and personnel. For example, the questionnaire **"Studying the professional needs of university librarians"** was implemented in 2016.

The combined knowledge gained in the project formed the basis of 18 **strategies** of university libraries for a five-year period, approved by the senates of universities - participants of the project and accepted for implementation.

Thus, the project was built on a systematically organized cognitive activity aimed at continuing the education of library specialists in general cultural and professional aspects.

A lot of attention in the framework of the project was paid to various categories of **users**: students, masters, doctoral students and teachers.

In order to optimize library services for users, the project carried out sociological studies of the information needs and competencies of masters, doctoral students and university professors in the field of Information Literacy; there were identified opinions and suggestions in the field of information support for the educational and scientific process in universities. (Project Results "Modernization of academic library services in Moldova", Project number CPEA-2015/10014. Project period: 2016-2019.[3]

The results of these studies formed the basis for university library strategies, user service plans, and library service promotion programs.

The material and technical base of university libraries was noticeably strengthened. Within the framework of the project, for participating libraries there were bought 9 computers, 11 laptops, 3 projectors and 3 screens.[4]

Library **resources** were significantly enriched throughout the project. So, for three years, from 2018 to 2020, university libraries equally had and still have the access to well-known scientific licensed databases, such as EBSCO Publishing Database, Sage Research Methods, Cambridge University Press, Web of Science, Taylor & Francis. The access to world-class scientific resources has enabled students and local scientists to have equal opportunities with scientists from the world's largest research centers.

The uniqueness of the project - is in a single data center, in close cooperation led by the Academy of Economic Studies. Under the leadership of Sylvia Ginkulova, director and project coordinator from Moldova, taking into account the risks of non-information, an extensive information system was created linking 18 participating universities of the project (Fig 2.). Clearly organized and well organized, it contributed to the close coordination of the activities of all participants, solving problems and removing barriers to project implementation.

[3] Project "Modernization of academic library services in Moldova", Project number CPEA-2015/10014. Project period: 2016-2019. Access: https://newinformationservices.wordpress.com/publications/

[4] Project "Modernization of academic library services in Moldova", Project number CPEA-2015/10014. Project period: 2016-2019. Reports. Access: https://newinformationservices.wordpress.com/reports/).

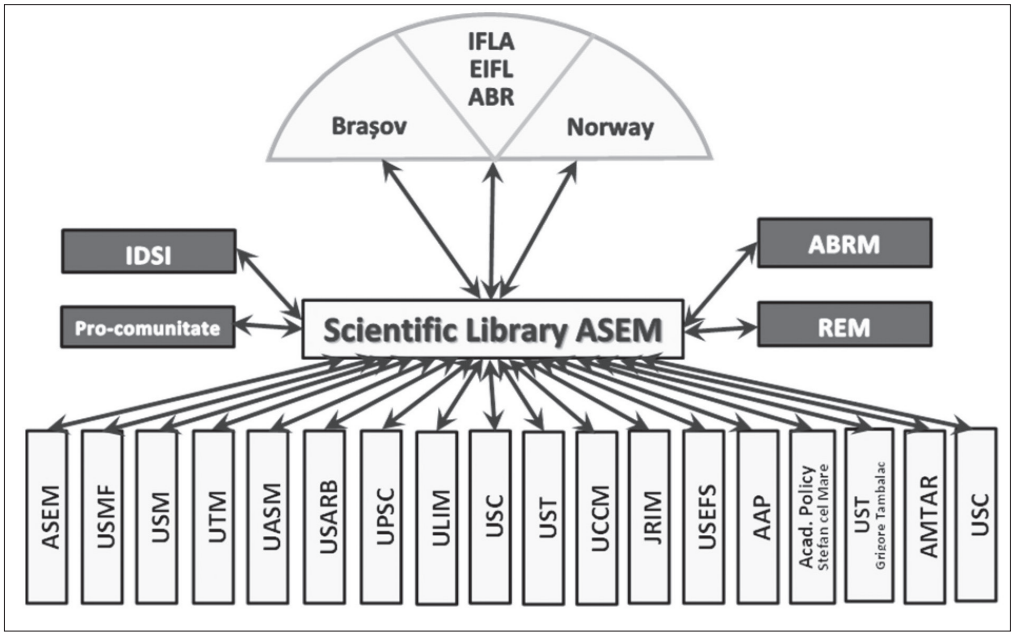


Fig. 2: Project Information System

The informing was carried out both in the traditional format, and in the online environment. The key tool in informing about the project that enriched and raised the project to a high level was the electronic page of the project, developed on the AESM Scientific Library website. The advantages of the page are the completeness of information, timely replenishment, ease of access, visibility and clear structure of information.

At the same time, the spreading of information on the activities of the project "Modernization of academic library services in Moldova" was carried out at all levels: international, regional and local. A wide range of formats for disseminating information about projects was used: international conferences, study tours to university libraries of partner countries, trainings, publications, electronic page. IDSI became an information partner in the project and provided an online broadcast of project activities.

Thus, the wide spreading of information about the activities of the project contributed to its popularization, both on the territory of Moldova and internationally.

Attracting the attention of the university administration to the project, to the problems of university libraries was a well-thought-out, balanced step along the path of promoting the project. The library system cannot function effectively without the support and close cooperation with the university administration, higher establishments, and authorities. So, the study visit of the rectors of the participating universities to Norway became an important point in improving the image of university libraries, recognizing their importance in ensuring the educational and scientific process of the university, drawing attention to their problems.

The participation of 18 university libraries in the project "Modernization of academic library services in Moldova" marked the beginning of their close cooperation: the libraries signed a Cooperation Agreement until 2013, which will continue outside the project.

Success in the implementation of this project is expressed in a better preparedness of staff for the implementation of modern library services, in the creation and testing of 18 strategies for the development of university libraries, in providing access to world scientific information resources, technical support, etc.

With the help of the project, the libraries were able to better adapt to environmental changes and increase awareness among users about their significance.

Thus, project activity in the libraries of Moldova is necessary, it is developing, combines the knowledge gained during educational and self-educational processes. The activities in the project are aimed at developing research skills, since it involves in solving urgent problems, includes their search, experimental work, testing, analysis of the results.

At the same time, project activity requires goal setting, objectivity, initiative, originality in resolving issues, innovative approaches, the intensity of mental work, research experience and self-education experience from its participants.

Thus, international project activities in libraries ensure their advancement, become the basis of their development, the effective format that helps them not only survive, but also to meet modern requirements for libraries and smooth out the inequality of opportunities of different libraries, both at the country level and internationally.

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MODERNIZATION OF THE LIBRARY AND INFORMATION SERVICES FOR RESEARCHERS IN THE REPUBLICAN SCIENTIFIC AGRICULTURAL LIBRARY

UDC 027.7:001.83

Ludmila COSTIN, Viorica LUPU, Vera SOBETCHI

The genuine mission of the university library has always been and still remains to support learning. The orientation of higher education towards internationalization as well as increased competitiveness in the academic environment strengthens the importance of research-based education. The scan of the university research environment and of the university curricula highlights the growing interest for research. Thus, in recent years research has become essential in order to meet excellence criteria in higher education, respectively, it represents one of the strategic objectives of the universities in the Republic of Moldova.

University libraries have always supported research in various ways. Unfortunately, nowadays, they are facing new challenges of changing the research paradigm, with special emphasis on the amplified processes of communication in science, the need to increase the visibility of the university scientific output, increased demands on measuring and evaluating the performance of scientific research, the urgent need for the exchange of knowledge regarding research information, etc.

Librarians activating in research and education institutions should determine and understand the changing trends in the field of research, the importance of visibility and performance of research and the completely changed role of librarians in the research cycle. In order to support researchers, the library is always seeking innovative ways, is exploring and developing new services that go beyond the traditional offer of library services.

There is a need for visible changes in all aspects of library activity. University libraries should promote innovations, quality practices, concomitantly being actively involved in generating their own new products and services: specific to the community served, personalized, focused on

the users' needs and placed always at the center of all activities. In this regard, these products and services will perfectly fit into the process of study and research, only under the conditions of effective cooperation with the teaching staff, departments and faculties.

Qualified librarian support is one of the most motivating factors for users who come to the library. The library should achieve outstanding performance in all aspects of its activity in order to provide quality services to the users, which requires continuous training and full involvement of the employees in achieving the quality objectives of the library.

Only increasingly advanced information skills will help to meet the academic requirements of the university curricula, therefore the competencies related to Information Literacy represent the first step towards achieving the educational goals of students. Training in the field of Information Literacy should become a fundamental professional practice developed by the academic libraries. Libraries should expand their Information Literacy programs in order to take into account employers' requirements. Being the primary providers of Information Literacy training, university librarians can significantly contribute to graduates' adaptability and flexibility to new challenging situations and consequently to the evolution of their professional development.

In recent years, visible actions focused on the reconsideration and modernization of the library services have been carried out in the context of involving university libraries in international projects, such as the project „Modern Information Services for Quality Education" co-funded by Tempus programme and the project „Modernization of university library services in Moldova" co-funded by the Norwegian Cooperation Programme with Eurasia in the field of higher education, carried out in the period 2016-2019. Both projects contributed to the development of librarians' professional skills, abilities and competencies and to the implementation of new services and opportunities for users.

The opportunity to access new information sources through the databases offered by the projects was promoted through presentations to the SAUM (State Agrarian University of Moldova) scientific community and agricultural research institutions, as well as within various events such as: the International Open Access Week, the „Day of scientific databases" and other public activities, through the dissemination of promotional materials, flyers, etc.

The library assumes an increasingly active role in the process of scientific communication by offering bibliometric services [6], the

bibliometry evolving from a subdiscipline of library science and information science to a tool used for the evaluation and comparative analysis of the visibility of scientific research output and university research activities [2,3,7]. Due to these services, libraries provide bibliometric information to various segments of the academic staff: individual researchers, groups of researchers, university structure (faculty, department and laboratory). At the same time, libraries also provide bibliometric services to decision-makers at the university level in determining the position of the institution in various world university rankings and top positions.

The bibliometric services offered by the Republican Scientific Agricultural Library (RSAL) include the following activities:

- Establishing the status of scientific journals (ISI listed or indexed in databases);
- Identifying potential journals for publishing articles in a particular field;
- Carrying out bibliometric analyzes of researchers' publications;
- Establishing the Hirsch Index of Authors;
- Providing assistance to researchers regarding the personalization of the scientific output in the Scopus database;
- Training and developing the skills of using the scientometric databases;
- Consulting on the evaluation of scientific publications, the calculation and interpretation of bibliometric indicators for journals, articles, authors, institutions and faculties;
- Determining university position in the international reference rankings.

A bibliometric service provided by the RSAL is carrying out bibliometric analyzes of researchers' publications through the Scopus database (Elsevier), which includes a volume of over 50 mln records and has 100% coverage of ISI journals. The bibliometric analysis supposes the identification and presentation of quantitative indicators regarding author's publications by the years of publication, field and type of publication, sources of publication and citations of the author's publications.

Also, the researchers could be helped to find out the Hirsch Index, which is an indicator expressing the value of researcher's activity according to the number of citations of the articles he/she has published. The Hirsch Index was proposed by the physicist Jorge Hirsch of the University of California (USA) in 2005 and was immediately adopted by the international scientific community. Thus, the index becomes an important tool for evaluating the scientific results of researchers and academic institutions and also a criterion for quantifying their scientific impact.

Librarians assist researchers in using the Scopus database, informing them of the possibilities and facilities offered by this database, such as: setting up a personal account by which each researcher can save his/her articles of interest, the searches and bibliographic references carried out; subscribing to the „alerts" service, which generates an e-mail to the researcher whenever a new article appears that satisfies a set of criteria defined by him/her; subscribing to the „articles-in-press" service, which allows to view the publications that are appearing.

An important aspect of librarians' duties in the context of providing bibliometric services is the training and development of researchers' skills in using scientometric databases. In this aspect, the library effectively cooperates with both the Department of Science and Innovation of the university and with the Directorate of Science, Vocational Training and Rural Extension of the Ministry of Agriculture, Rural Development and Environment of the Republic of Moldova. The library, in collaboration with the Department of Science and Innovation of the university have launched a program for the scientific community on the topic „Evaluating the results of scientific research", which was promoted by all the university departments and faculties. According to the program, the problems and opportunities for evaluating scientific results are widely addressed through the scientometric databases: Web of Science (Thomson Reuters), Scopus (Elsevier), Science Index (eLibrary.ru) in order to disseminate research results and to improve scientific communication.

RSAL, having the status of a republican information and documentation center in the field of agricultural sciences, has established as a clear purpose to offer a framework for promoting and debating the problem of evaluating the research activity with emphasis on the scientometric databases for the research staff employed in the scientific institutions relating to the field of agriculture. The activities carried out in partnership with the Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova had as target audience both researchers from scientific research institutions in the field of agriculture, as well as representatives of the ministry. The purpose of these activities was to present the international scientometric databases: Web of Science, Scopus, Science Index, the national bibliometric instrument, as well as to present the criteria for evaluating the journals and the publication requirements of a scientific article.

The tutorials represent an online support developed by the library for the informational support of researchers. This product consists of a set of information materials covering various important and useful topics in the research activity, such as:

✓ How to choose a suitable journal for publishing a scientific article?;
✓ Library supports the learning, education and research;
✓ Library - your partner in education and research;
✓ Quality Open Access Market - a tool for testing the quality of scientific journals etc.

The key aspects of today's research environment aim at increasing the demand for digital content, developing and managing data sets, developing metadata standards for efficient access to information, determining the evolutions in scientific communications, stating funding requirements for multidisciplinary international research with open access mandates etc.

As authors, the researchers face the continuous challenge of distinguishing their own activity products from the scientific investigations of other scientists with similar names. In order to achieve this purpose, it is essential that the results are accurately identified and attributed to the corresponding author, institution, publisher or financer. Finding all the publications of a researcher can be quite difficult if the author has signed with different variants of the name, changed the name during his/her professional career or has a double name. One solution to this would be to use a unique name throughout the entire publishing activity. The problem of ambiguity (incorrect identification) of the author's name by the research community can be solved through author identification systems, such as ORCID, ResearcherID, Scopus Author Identifier, etc., which generates a permanent and unique digital identifier (ID) to each author [4]. In this context, the library assists researchers in using the tools to identify authors.

Also, the library comes to the aid of the researchers when selecting the means of publishing the research results, especially given the fact that a lot of studies and scientific journals are published all over the world and there are reported multiple cases of deceptive publishing [5]. Therefore, selecting a relevant journal for publishing manuscripts or articles becomes a difficult and challenging exercise for researchers. The problems that may arise in relation to the choice of the scientific journal are caused, to some degree, by the lack of editorial ethics of the so-called „false scientific journals" (predatory journals).

Among the general criteria that should be considered when selecting a journal for the submission of manuscripts, we'll mention the potential impact of the journal (its visibility and prestige), the area of interest of the journal, indexing in databases, the impact factor of the journal, the

length of time between submission and publication of the manuscript, review process, etc. [1].

The library has developed its own concepts, programs, teaching resources and tools that it uses in developing the knowledge and skills of students, teachers and researchers.

The new practices, experiences and computer applications assimilated during the training activities have proved to become a very important educational support, being integrated in the professional training programs of the library staff. At the same time, they have had the effect of expanding and integrating new innovative aspects in the programs related to Information Literacy of the library. The program for researchers „Scientometrics. Open Science", held jointly with the University's Science and Innovation Department, includes presentations at the University's Scientific Council meeting, within the campaigns promoting open access, individual and group presentations for the teaching staff at university departments, at the Francophone University Centre etc. The topics presented by library's staff refer to such aspects as: academic writing, the structure of a scientific article, the presentation of references, the citation of publications used by authors and bibliographic management tools. Among other topics we could mention: scientometric databases, databases with open access in the field of agricultural sciences, access to specialized databases to which the library has access, the institutional repository, opportunities for information and documentation provided by the Primo platform, etc.

The library tends to integrate into the research process in order to support researchers throughout the life cycle of the research. In this context, a recent subject of study of the library staff concerns the management of research data. The importance of this topic in the research environment is increasing due to the changes regarding the sharing of research data. Various researches show that open data provide researchers with an increased number of citations. At present, this issue is present in Information Literacy program of the library for researchers as a special topic. As a result of the study it is intended to implement a distinct program for researchers on this topic, which has been addressed in articles and communications at scientific meetings.

Thus, the library could get involved in the management of the research data by actively participating in the development of the institutional policy for managing the research data, assisting the faculties in data management and developing the management plan, providing metadata services for

research data, providing data storage services in digital archives and citing research data, etc. Library involvement in the research data cycle would facilitate the exchange and reuse of data for future research projects ensuring long-term data retention for future researchers, reducing the risk of data loss, increasing the responsibility and integrity of research.

Under current conditions, the university library should become a key intellectual center of the university community with permanently improved services through high-performance technologies. The Republican Scientific Agricultural Library of the SAUM considers the participation in national and international projects as an opportunity of major importance for the university libraries contributing to the modernization of the library and information services and to the dissemination of the best practices with considerable impact for library users, for the exchange of experience and for updating of the professional skills of the library staff.

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READING COMPETENCES – A KEY FACTOR IN EDUCATION REALISATION

UDC 028.1:027.7

Ecaterina SCHERLET

The development of some good habits referring to reading at students offers them the possibility to attain personal objectives, to get remarkable success in education and scientific research in their transition to their professional activity. That is why, the development of existing reading abilities and habits, the successful acquisition of other competences specific to university education becomes important and necessary. Moreover, the reading competence is basic to the development of the whole professional activity route; without advanced abilities and habits in this field one cannot speak about academic and professional success of a future teacher.

The capitalisation of the reading competence for the quality assurance of university instruction constitutes the basic dimension of professional development of the future teacher, the reading competence being part of basic qualifications, necessary for professional insertion within a society of knowledge and global communication.

The reading process holds a fundamental role within the techniques of intellectual work. Reading was and is for the human being the main way of cognition. The central problem of reading is that of meaning determination, the person trying to capture and to decipher through reading a message. The reception of the message leads to a process of actualisation of the old knowledge, as well as to new associations, and, perhaps, to the discovery of new truths (Porumbeanu 2006). Through its content, each document sends a message. Deciphering and decoding of the content of this message is done through the act of reading which is a complex process consisting in the processing, perception and storage of the information in a rational and effective way.

The reading competence represents, actually, the wide ability of understanding, of using, and of reflecting on the shapes which can be

taken by the written language, with the purpose of achieving personal and social fulfillment. This competence goes beyond the cognitive components of reading, integrating the motivation to reading and active implication of educational subjects in activities of using written materials (2011).

Speaking about reading competences of students, it is necessary to mention that they already have some cognitive structures developed (knowledge about the text, knowledge about the differences between the literary and non-literary text, recognition of fundamental textual structures; knowledge on the notions of subject, theme, main/secondary idea, main/secondary character etc.), some formed abilities / identification/decoding/interpretation/summarising habits which can spread from the recognition of one word or the selection of an idea to the configuration of the global meaning of a text; they can formulate and interpret personal attitudes, feelings and experiences concerning the read text. Continuing their studies at the university they still need the formation/development of such capacities and attitudes as: reading through lines; reflecting on the read information; identification the author's position on a given problem; adopting a personal position connected with the written text; reacting to the written text etc.

The Vice-president of the Romanian Cultural Institute, PhD, University Professor Mircea Mihăieş, considers that reading is not only important, but even essential in the development of the intellectual capacity of the future student: „There are enormous lacks in the general culture of the students. If, some years ago, one could make cultural allusions, it is impossible now. You need to explain yourself, because nothing goes without saying nowadays. Seminars and lectures are sad , a standard course does not look as it did ten years ago. You always need to start from zero and build something." (Hodinitu 2014).

That is why, according to E. Hodinitu, the teaching staff must actively contribute to cultivating and development of reading dexterity of both, printed and electronic texts. This can be realised within education in several ways: compulsory reading, public reading, independent reading, reading as didactic methods etc.

Compulsory readings represent publication lists within the disciplinary curricula, approved by the university chairs/departments. This type of reading establishes the fundamental landmarks for the learning of the subjects, awaken the interest for reading and is realised during the study process.

Public reading, newly called lectured, is an activity that means not only the idea of persuading people to read more pleasantly in a group,

but also to expand their horizons through knowing other youths, thus socialising with new people, to make new friends etc. It should be mentioned that this activity is an interactive one, reader (pupil, student) centred.

Independent reading makes the reader find himself in the situation of being together with that imperative tension which determines him to possess the text or image, to interiorize them, to give them a meaning, and then to create the meaning

In the case of reading as a didactic method, the information source, is the written text, first of all, the manual, but also the specialised works, dictionaries, encyclopaedias, magazines, compilations. The students read with the purpose of learning, thus acquiring knowledge through personal effort. The use of this method presupposes the capitalisation of some reading techniques (as, rapid learning, active learning, explanatory learning, selective learning), as well as of some skills and habits of information stocking and processing (as note taking, main information extraction, file/conspect elaboration skills etc.). the value of the method stands, especially, in the consolidation of these techniques of intellectual activity.

Used within the course hours reading has the role of: fixing what the teacher said; awakening the interest towards the lesson, attracting attention to the essential characteristics of the object or phenomenon under discussion, explaining the main idea, the content of some notions. Additionally, reading can contribute to enlarging students' vocabulary and knowledge; to stimulation of communication abilities; to expanding their general horizons etc. (Hodinitu 2014).

In order to identify the impact of reading competences on studies and scientific research quality, we have realised a study on the basis of a questionnaire.

The goal of this questionnaire is to determine the importance of reading for personal and professional development, to identify the level of reading competences and abilities of the students, as well as training-development needs of reading competences.

The objectives of the study: the identification of the level of implication within reading activity; capitalization and purposes of reading; development of reading competences and abilities at university; determination of the influence of the reading competences and abilities on education and scientific research; establishing the needs and necessities of developing reading competences.

Among the activities, processes and necessities of university learning, reading, as an intellectual activity, but also as spiritual necessity of training-development of the personality, holds a central place in students' life, a fact confirmed by the time devoted to Fig.1.

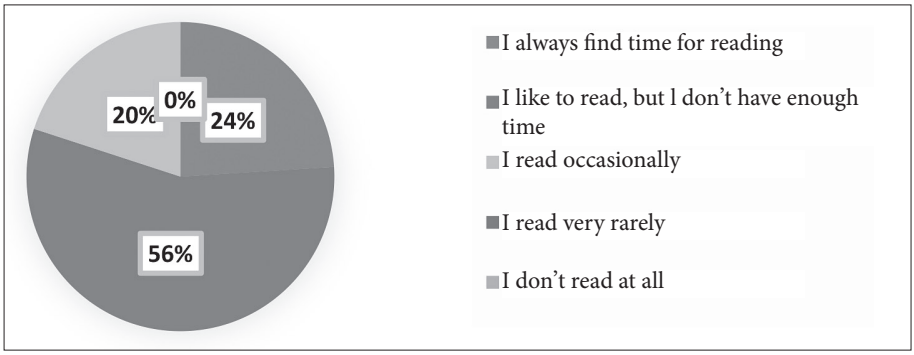


Fig. 1: Time devoted to learning

The obtained results prove that the students read, they like to read, but they do not have enough time for reading, some of them (24%) try to find time for reading, others (20%) read occasionally, which is not acceptable for higher education. It was essential for us to find out students' own opinion concerning their personal reading (Fig. 2).

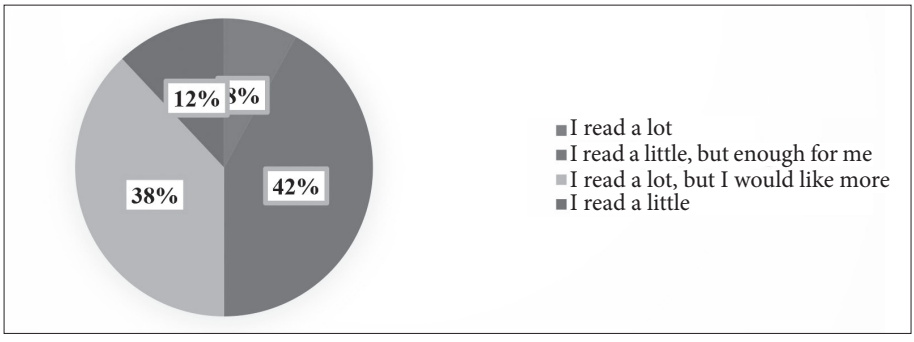


Fig. 2: Evaluation of personal learning

The obtained answers prove that students are oriented for the reading of a big volume of information, a fact proved by such affirmations as: *I am reading much, but I'd like to read more* (38%) and *I am reading very much* (8 %), but there was established a group (42%), which reads little and

considers that it is enough for the students. There are respondents who read little (12%), which should not refer to higher education, especially to a philology faculty.

Reading represents a form of pastime which not only distensions and relaxes, but also educates and mentally develops, a fact confirmed by the students' answers to the question "What does reading mean for you at the moment?" (Fig. 3).

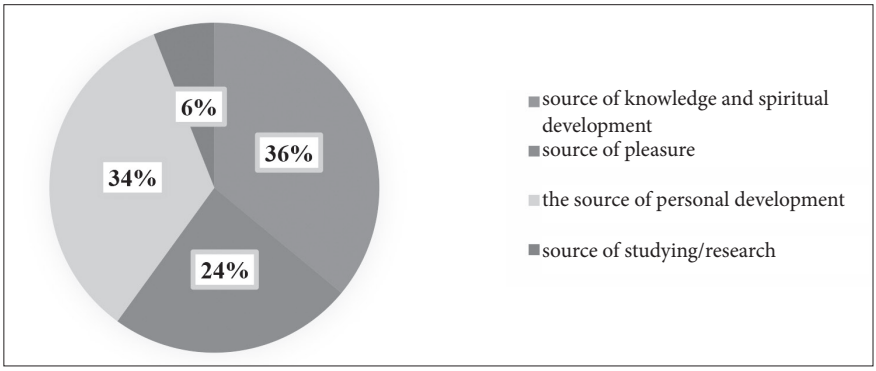


Fig. 3: Reading for students

Students' answers prove that at the moment reading for them is mainly *a source of knowledge* (36%) and *source of personal development* (34%), because they pass through the stage of professional training and personal development, but, at the same time, the respondents do not exclude reading for pleasure(24%).

Through a separate question we tried to find out the motives of reading, which is the goal of reading for the interviewed students (Fig. 4).

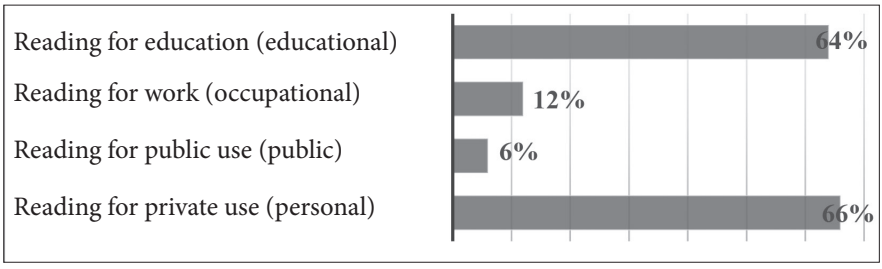


Fig. 4: Students' motives for reading

The main motives are *reading for personal use* (66%) and *reading for education* (64%), which proves that students like to read for the need of intellectual and spiritual development, reading symbolizing knowledge and source for instruction and education.

Realizing the study on reading and the necessary competences for the realisation of the effective reading, we wished to find out which, in research subjects' opinion, are the most important features of a competent reader (Fig. 5).

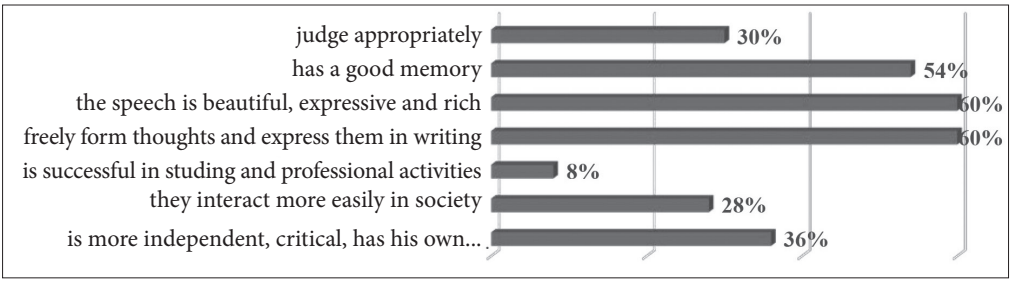


Fig. 5: Features of a competent reader

In the opinion of the respondents, the competent reader has mainly developed communicative and cognitive skills, is independent in his actions, is more critical in the analysis of suggestions and opinions, is capable to form and express his own personal opinion.

At the end of the questionnaire we intended to find out the training-development needs of some reading attitudes (Fig. 6).

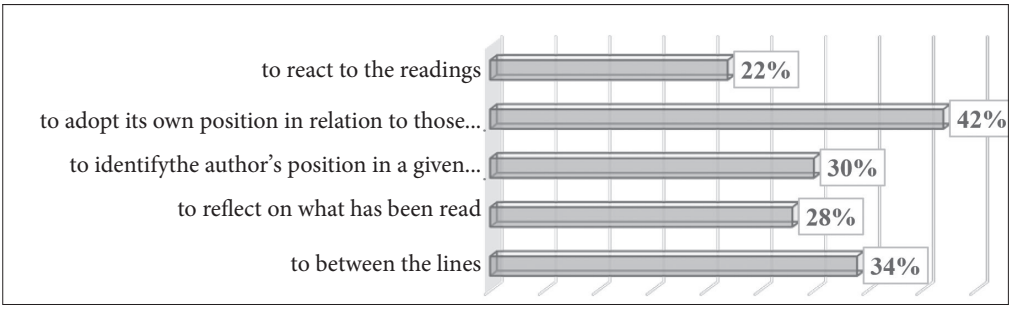


Fig. 6: Training/development reading

The results of the answers prove that the students wish to obtain knowledge in order to have the possibility to *create their own position*

referring to reading; they are interested in the so-called method of *reading through lines;* ways of identifying the author in a certain problem: probably, they need to reflect on the information read.

Thus, we can suppose the following:

Students-philologists devote sufficient time for reading, due to the fact that reading is the basis of their learning and research, which fits perfectly their intellectual activity. The evaluation of their own reading reflects the level of students' implication in the act of reading.

Reading is the main source of knowledge, spiritual and personal development is an essential condition to manage in life. Reading literary works, as a way of instruction and education, has a special importance for students-philologists in their professional training.

Students are predisposed to reading-research and reading-creation, in such a way they gain information and new knowledge, on the basis of which, they create their own values, visions and opinions in order to solve specific problems for the chosen professional field (essay, theses writing, preparing for conferences and seminars).

Reading deals mainly with the process of crossing, deciphering and capitalization of a text, while the reception deals with the results of tis (the significances attributed by the reader to a text after the reading, the appreciations of the read texts, which remain in time in the conscience of the reader as experiences of reading etc.). This very process of receiving creates difficulties to students. The capacity to summarize content is for the students' ability hard to assimilate. In order to learn it, they need adequate models and much practice.

Reading is an essential aspect in the instruction-educative process, nowadays there exist objective factors which diminish the reading process that is why, the teaching and library staff have a particular role in the edification of the prestige of reading. For the activation of reading it is necessary to promote the image of reading, to learn and teach the use of different reading techniques, to organize ample activities to support reading.

Reading adapts to the followed purpose, to the nature of the text, but also to the circumstances. Depending on the needs and the circumstances, to the many ways of reading (objective or projective; efferent or esthetical; linear, exploratory or selective; sensual or logical; nonchalant or programed; identifying or critical; consuming or assimilating, etc.) they are practiced isolated or combined. Reading depends on the possibilities, aptitudes, tendencies of every individual, being an extremely complex.

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THE PROGRAM „CARE FOR THE NEW USERS": EVOLUTION AND EVALUATION

UDC 027.7:[371.3+004.657]

Irina BOTNARU

For decades, the university libraries have faced challenges committing them to become more flexible, to connect to the world evolution trends, to align the information services and products intended for the users to the international standards, contributing therefore to the improvement of the higher education quality (Landøy 2017). Hence, the librarian in nowadays has to be very well prepared for the current changes in order to become an integrated and inherent element of the Knowledge Society. The specialist in this field has to participate in the process of training and education by facilitating the access to knowledge, promoting the Information Literacy, contributing therefore to the development of the positive attitude toward education and knowledge. The information networks influence the modality of using the information and respectively, the process of info-documentation mediation, which entail the library's staff to acquire new experiences (3, p. 78).

The Information and Library Science Department of ULIM (DIB ULIM) continues to align to the new trends aiming at meeting the users' needs through the realization of different programs and campaigns.

The Information and Library Science Department of ULIM considers that it has to know its users, to follow the evolution of their needs and to meet their requirements in order to be up to date with the mutations and the changes occurring in the society. The university libraries have to focus their activities on the users' needs of information and knowledge, especially in the context of the last changes. DIB ULIM is one of the institutions that catalyze all its energy toward the user, especially the new one. Mostly that the annual analyses (interviews, implications in teaching the course "Fundamentals of the Information Literacy,

verbal discussions, etc.) point up the following situation: the students, enrolled in the first year of studies, being opened toward the process of documentation and information, do not possess mainly skills of accessing, evaluating and using the information, the specific techniques technologies. Consequently, DIB ULIM pays a primary attention to this category of users, facilitating their process of implication in the information and knowledge space.

The program "Care for the New Users" is an efficient modality of training the new users, aligning integrally in the context of DIB mission: the implementation of the Information Literacy and learning, based on modern information and communication techniques and technologies, training the users skills of information management.

The factors stimulating the elaboration of program were the implementation of Tempus-Tacis "Library Training in Moldova" project.

The object of the program is to attract the users in the spaces of reading rooms for consultation and documentation, training skills of formulating, synthetizing the need of individual information, research and use of the information, amplifying the information skills and the culture of learning.

The program is oriented for the 1st year students of all faculties of ULIM from Licentiate, Master and Doctorate cycles (enrolled outside ULIM) and works annually during the first semester of the university year (September-December).

The program "Care for the New Users" is at its seventeenth edition and therefore, over the years, partnership relations have formed within the program, which facilitate its functioning. The institutional partners are: the faculties, the departments, the didactic-scientific staff; the forms and the methods of partnership are the following:

- Book launch, presentations of didactic-scientific staff publications in DIB spaces;
- Performance of courses in the Reading Rooms by the professors with the intervention of librarians with a mini-course oriented toward the training of information-documentation skills;
- Activities of general presentation/promotion of services, spaces and access conditions to DIB resources (panoramic excursions – September 1st);
- Realization of the course "Fundamentals of the Information Literacy" (compulsory course introduced in syllabus) and others.

Over the seventeen editions, the Program "Care for the New Users" has developed and progressed in several stages.

The first stage (2001-2003) aimed at integrating the activities of training the culture of information and learning. The program started after the implementation of Tempus-Tais "Library Training in Moldova" project. During this period, the program had several reference positions: orientation of students toward the efficient use of spaces, services and available resources; training of information skills.

The second stage of the program (2003-2009) was implemented and elaborated in a new formula – 3C formula. It consists of combining organically the orientation toward the Information Literacy with the cultural and intercultural function of DIB.

During this stage it was highlighted namely the culture of information given the fact that "the Information Literacy is a part of the education throughout the life by which are acquired skills and competences of use and management of information-documentation resources". "The culture of information becomes a primary condition of the professionalism and the success of the future specialist from any field. […] It is the key for the permanent education and it has an important strategic importance in the education plan, improving the teaching and learning environment. It is even the ability of surviving in the 21st century." (Gore 2010). Thence, in the second stage of the program, the primary purpose of DIB UIM was the training the culture of information of the new users.

The third stage (2009-present day), the program "Care for the New Users", has developed and progressed significantly, diversifying the purpose, the forms and the methods in collaboration with the institutional partners. For example, the 2019 edition of the Program aimed at (see the annex of the seventeenth edition):

- Facilitating the adaption of the students, enrolled in the 1st year of the Licentiate Cycle to the specificity of the university community;
- Developing an efficient system of tutorials, video and increasing their use as sources of learning;
- Developing the role of university libraries in the permanent education;
- „Learning" the methods, the techniques of intellectual work;
- Accepting by the new users the importance of possessing the Information Literacy and learning;
- Training the information skills as integrating part of the intellectual culture;
- Training/amplifying the interest for the values of the culture, science and civilization etc.

Each edition has its specificity depending on the new challenges and needs of the user. Each edition has its slogan. For example, the slogan of 2019 edition is: *The sages are always over the books.* (Samuel Daniel).

We may specify the forms and the methods of 2019 edition:

▪ Organizing the visits for the students in reading rooms specialized in knowledge and subsequent use of the DIB information-documentation potential (at the beginning of teaching the actual disciplines);

▪ The course "Information Literacy" oriented toward the training of information skills:

✓ Use of the electronic catalogue;
✓ WEB page of DIB: information, promotion and documentary content;
✓ Online data bases, provided by DIB;
✓ Bibliographic references: elaboration and presentation;
✓ Use of Microsoft Office programs, etc.

▪ Mini-courses themed "Good in chosen profession":

✓ Time management;
✓ Elements of personal branding;
✓ CV correctly produced: chances of professional success.

Cycle of activities themed: *Say NO to plagiarism*. The knowledge of the Law on copyright and related rights (aspect of user of the library and the possible author), Law on publishing activity, Law on libraries; knowledge of new requirements on the elaboration, presentation and quotation of the bibliographic references etc.

According to the analysis made at the closure of each program, we have ascertained that the Program "Care for the New Users" has an major impact and namely – it contributes to the attraction of the students in the reading rooms for consultation and documentation, training of the research skills, analysis, synthesis of the individual information, research and use needs of the researched information, the development of the information attitude skills. The program has a guardianship and learning character, implementing technical competences and methodological orientation knowledge in the information words, therefore training a divergent thinking. Hence, ULIM student possesses the necessary tools for the process of individual working, documentation and compulsory and additional information.

The program trains the prospect training of a good professional, who is aware of the following: the information has power; the modernization and the update of the knowledge and the skills is a process realized throughout the life.

Thence, we may conclude that the "Care for the New Users" is an efficient tool in realizing the primary purpose of the library – training the Information Literacy, the development of the intellectuality and the divergent thinking of the new user, training the skill of locating, evaluation and using the information in order to become forever an informationally independent person.

Annex

PROGRAM „CARE FOR THE NEW USERS": 2018 edition

No.	*Activities, processes*	*Term for realization*	*Responsible person*
1.	Information exposition "Pages of ULIM's history: education, history, research"	September – October	N. Moraru A.Cojocaru
2.	September 2nd – "The Day of Knowledge and Wisdom!" (presentations – syntheses "DIB in university", "What you have to know for the first visit at ULIM", Information Centers at ULIM, panoramic excursions in the functional spaces of DIB; presentation of expositions)	September 2nd	I.Botnaru Coordinating librarians
3.	Organizing the visits of students in the reading rooms specialized for the knowledge and the subsequent use of the information-librarian potential of DIB	Within the program	Librarians Contact
4.	Attraction of the 1st year students through specific services in order to support the educational process (expositions, info-seminars, round tables, public lectures etc.)	-//-//-//-	-//-//-//-
5.	Cycle of activities themed: *Say NO to plagiarism*. The knowledge of the Law on copyright and related rights (aspect of user of the library and the possible author), Law on publishing activity, Law on libraries; knowledge of new requirements on the elaboration, presentation and quotation of the bibliographic references etc.	October – December	I. Botnaru
6.	Elaboration and dissemination/promotion of promotional material: ▪ What you have to know for the first visit at DIB? (book sign)	September	I. Botnaru V. Bogdanov
7.	Cycle of activities themed: "Information Centers at ULIM"	Within the program	N. Moraru

8.	Course "Information Literacy" oriented toward the training of information skills: ▪ Use of the electronic catalogue; ▪ WEB page of DIB: information, promotion and documentary content; ▪ Online data bases, provided by DIB; ▪ Bibliographic references: elaboration and presentation; ▪ Use of Microsoft Office programs, etc	Within the program	Coordinating librarians V. Ciobanu
9.	Presentation/update of the stand: "Useful recommendations for lecture…"	September – November	N. Moraru
10.	"Volunteer in the Library": implication of students in volunteering activities in order to become a friend of the Library	Within the program	Librarians Contact
11.	Promoting the campaign: "The most devoted, intellectual and active user of the Library and Information Science Department"	September – October	N. Moraru

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SCIENTIFIC LIBRARY OF THE STATE UNIVERSITY OF TIRASPOL WITHIN THE FRAMEWORK OF THE PROJECT "MODERNIZATION OF ACADEMIC LIBRARY SERVICES IN MOLDOVA"

UDC 027.7:005.591.6

Veronica SANDU, Ludmila VÎHRISTIUC,
Angela CAŞLEV, Ghenadie CERNEI, Denis PUŞCA

The state policy at the country level assigns an appreciable role to the scientific libraries as an integral part of the national information system which, in the interpretation The "Code on science and innovation", being institutions of strategic importance in the information society, by ensuring access to information, contributes to the formation of a favorable environment for the dissemination and capitalization of scientific-technological information in science, education and production.

In recent years, substantial changes have been made at the level of the global social system. The obvious reforms that are attested, in particular, in the educational and research subsystem determine and directly influence the current and prospective development of scientific libraries.

The scientific university library, as a basic information component of the university, must be aligned with the trends of development of science and technology, characterized by the internationalization of higher education, the increase of the competitiveness in the academic environment, the interdisciplinary fields of knowledge, increasing with high intensity the amount of potentially relevant scientific information, the need to measure and evaluate the performance of scientific research.

The library must respond to these challenges by redefining and extending its professional role within university institutions, by re-evaluating the areas of traditional activity and professional competences, by developing innovative products and services, by making more efforts to prove their importance and usefulness, by identifying ways to add value to their activities.

The academic libraries today have made a big leap, due to the

partnerships they have established and due to the management of international projects, which they apply, from where they take the experience of the European libraries and implement it here in the country.

Of particular importance was the Project "Modernization of academic library services in Moldova", funded by the Norwegian Cooperation Program in Higher Education with Eurasia, developed in partnership between the Academy of Economic Studies of Moldova, the University of Bergen, Norway, the Transylvania University of Brasov, Romania and 18 university libraries in Moldova. Within this project, the goals of consolidating the capacities of the librarians from the university libraries, the creation and the support of the network of university libraries in the Republic of Moldova, connected with the university libraries from all over the world, the creation of strong and lasting institutional partnerships through academic collaboration between the institutions of higher education in Norway, Romania and the Republic of Moldova. To this end, there have been organized a series of workshops in Chisinau and three summer schools in Romania (http://newinformationservices.wordpress.com/).

Within the workshops there developed the Strategy for the development of the modernized university libraries, based on the strategic management. In order to facilitate the strategy development process, there were invited experts from the Pro Community Center that came with modern ideas and techniques in this field. The strategy of library development is in correlation with the national and international legislative framework in the field, the framework for regulating the library activity, the reports and programs of library activity, as well as with the trends, directions of development of other university libraries abroad.

The library development strategy reflects the strategic landmarks of library development over a four-year period and represents an effective working tool for initiating, implementing and promoting plans for library development.

Starting from the existing situation, the library development strategy includes diagnosing the real situation of the library by presenting the advantages and weaknesses identified in the activity of the library, the opportunities and threats generated by the external and internal environment, SWOT analysis.

The elaboration of the modern strategy arises from the importance of the documentary setting of a coherent and well-defined framework of the strategic SMART objectives, which the library must achieve.

In view of the strategy, the Scientific Library of the State University of Tiraspol assumes a new perspective on its evolution and functioning, aspiring to become an information and documentation center with an ascending development, perceived by the community as a modern information environment with services permanently improved by adequate performing technologies, which ensures unrestricted and equitable access to information and knowledge, continuously contributing to improving the quality of culture, research and education, the quality of life of community members. Other platforms such as Mendeley, Scopus, and Google Scholar were popularized (Repanovici 2018).

The working process in the elaboration of the strategy is a collaborative and transparent one, initiated within the project "Modernization of academic library services in Moldova".

In order to attract the scientific community and to exchange international experience, the Scientific Library of the State University of Tiraspol hosted a guest from the Transylvania University of Brasov, Romania: prof., PhD. Angela Repanovici, with the presentation "Scientific research and communication, scientometric aspects" (Repanovici 2011). This presentation, as well as other activities of popularizing the library services, has significantly contributed to raising the awareness of the role of the library in the university.

Within the project "Modernization of academic library services in Moldova", there was made the access to electronic resources: Web of Science, InCites, Cambridge Journals Online and Taylor & Francis Online Journal Library, Cambridge Journals Online and SAGE Research Methods.

The managers of the university libraries were trained how to manage the research data by participating in the professional workshop and practical workshops presented by Ane Landoy, project coordinator, University of Bergen, Norway and Angela Repanovici, prof., PhD., Transilvania University of Braşov, Romania.

Subsequently Scientific Library of the State University of Tiraspol organized the hearing of the online introductory courses in Web of Science conducted by Clarivate Analitics, for the scientific staff, students, masters, doctoral students.

The library server with the KOHA library information system.

KOHA allows us to:

- Evidence of the library fund;
- Library users' records;

- Evidence of the movement of funds;
- On-line access to open access databases, electronic funds (e-books, multimedia files, etc.) and the provision of remote services;
- Formation of the online order by the user;
- A single database for all study blocks, with visualization e.g. Available;
- Possibility of contacting by e-mail of the persons with debts;
- Import and export data from the database in MARK 21 format, compatible with most library platforms;
- Open access to the repository resources;
- Keeping the resources with the metadata needed to import them into other international databases.

Creation of the university repository based on the Dspace platform allowed:

- Open access to the repository resources;
- Keeping the resources with the metadata needed to import them into other international databases.

Participation in the creation of the website of the university journal on the OJS platform with open access to articles based on the CC-BY-NC license, registration of the journal articles in Google Scholar, MEDRA, DOI.

The impact of the project in the activity of Scientific Library of the State University of Tiraspol is explained by:

- increasing the quality of the services provided through their modernization;
- increasing the interest of scientific researchers towards library resources;
- initiating collaboration agreements with other university libraries in the Republic as well as abroad;
- developing the professional competences, abilities and skills of librarians;
- implementation of new services and opportunities for users;
- knowledge of different training methods: communication, exploration, action and rationalization, elaboration of strategies;
- consolidation of knowledge and skills in the field of information culture, research data management, registration, operation, management; information retrieval tools, research evaluation, impact factors, information use ethics, plagiarism.

International trends in the development of the academic library can

only be achieved through strong partnerships and academic collaboration between higher education institutions.

We thank the project coordinators and experts: Ane Landoy, University of Bergen, Norway; Angela Repanovici, Transylvania University of Braşov, Romania; Silvia Ghinculov, Scientific Library of ASEM, Moldova, as well as colleagues for collaboration and exchange of experience within the project.

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IMPACT OF INTERNATIONAL PROJECTS ON THE DEVELOPMENT OF THE LIBRARY OF THE ACADEMY OF PUBLIC ADMINISTRATION OF MOLDOVA

UDC 027.7:005.591.6

Rodica SOBIESKI-CAMERZAN

The development of a modern academic library is characterized by an increase in the speed of changes taking place in the information space, the education system and the scientific communication, which have a significant impact on modern directions of library activities.

In recent years, due to the implementation of information and telecommunications technologies, increased competition in the market of educational services, globalization of science and education, the emergence of scientific projects, etc. in the higher education as a whole, as well as in the activities of the university libraries, significant changes can be observed.

Currently, a modern library is an indispensable part of the educational space, being the basic support of the training and research process. The role of the university library increases in connection with the transformations and modernizations that are taking place in society, but also because of the stormy evolution of information and electronic communications technology, which have radically changed the information environment, offering new opportunities and at the same time creating new challenges for libraries. The efficient implementation and use of modern information technologies in the library activity requires solving a diverse spectrum of problems, starting with the conceptual, technological, organizational ones and ending with the professional development of library staff and the training of users. Today, the library must have a general view of the information sources, information techniques, information transfer systems and information services. Thus, the university library must take all possible measures to facilitate access to information; to gather and disseminate as much qualitative and complete information as possible.

The libraries of the universities of Moldova have modernized their activities, taking into account the constant dynamic changes in the society, education, in the field of communications and information. Today, it is possible to talk about the primary role of the university libraries in the process of meeting the social needs of the community as a source of training and provision of documentary and informational resources.

Professor Ion Stoica states: "The info-documentary environment is generous, it has a huge training potential (Stoica 2001)." The university library is such an institution that, through its functions, comes to fulfill the university's role of training, educating and life-long learning. By disseminating the contents, the library fulfills its main mission to inform; by getting involved in organizing important cultural events, it is defined as a cultural agent; by providing complementary preparation of bibliographic specialty and by assisting in the research processes, the value of the library increases, it becomes a provider of training and research support.

Thus the modern library is a library armed with modern technical equipment that implements the latest innovations in the field of science and technology, becoming an integral part of the educational and scientific infrastructure of the educational institution.

For the Library of the Academy of Public Administration, the second decade of the XXI century is the decade of great changes oriented to the modernization and creation of new information library products and services, structural units, the introduction of new methods and forms of information processing and dissemination, the application of new modern library technologies. The library adjusts its activity to meet the information needs of the users by changing the range of services, which is accompanied by a change in the technology of production, organization, maintenance, change of the entire library environment. However ,,through the information culture it contributes to the consolidation of knowledge, to the creation of new skills, adapted to new technologies, but also to the progress of scientific research and to the preparation of the next generation" (Repanovici 2017).

One of the most efficient concepts of development and modernization implemented in the Library is the project management, which aims to adapt its activity to the international standards of the info-library institution. The elaboration and implementation of projects offers modern, flexible ways of organizing and functioning of the info-documentary institution, with the purpose of adapting to the changes of internal and

external environments, the training of the personnel in order to achieve the set objectives. The fulfillment of major changes in the activity of the library are largely due to the impact of the latest international projects implemented by the Library of the Academy of Public Administration.

"The projects are oriented towards achieving the proposed objectives, being characterized by dynamism and complexity. Any project, including the ones funded by the European Union, aims to support donor policies in achieving the set goals. By implementing any project, it is desired to develop the regions and achieve sustainable development objectives. Currently, projects represent a way of surviving of the libraries, generating effects on the organizations that implement them, on stakeholders." (Harconiță 2017)

Thus, in the period 2015-2019, the APA Library benefited from 2 international projects that led to the reformation and modernization of the library:

1. The international project **"Modernization of Academic Library Services in Moldova" (2016-2019)** was financed by the Norwegian Program of Cooperation with Eurasia in the field of higher education and realized in partnership between ASEM and the University of Bergen, Norway, the Transylvania University of Brasov, Romania and 18 libraries from the Republic of Moldova, including the Library of the Academy of Public Administration. The main activity in this project was to strengthen the capacity of librarians and through them those of the teachers and students from higher education institutions.

2. **"Library Network Support Services: modernizing libraries in Armenia, Moldova and Belarus through staff development and reforming libraries (LNSS)"** (2015-2018), whose main purpose was to consolidate and modernize libraries, improve the level of competences and skills of library staff in higher education institutions in Armenia, Moldova and Belarus. The project was carried out under the Erasmus + Capacity Building Program in the field of higher education and was funded by the European Commission.

Through the implementation of the project **"Modernization of Academic Library Services in Moldova"** http://aap.gov.md/files/publicatii/ziar/18/518.pdf**,** a series of specific objectives were pursued, such as the creation of strong and lasting institutional partnerships through academic collaboration between the higher education institutions in Norway and the cooperating countries, the regional collaboration between the higher education institutions in the partner countries in

the project, the development and implementation of the study programs that are considered relevant to the needs of the libraries of the Republic of Moldova, the development of research-based and internationalization-oriented education in the institutions of the countries participating in the project, in particular in the field of information literacy; improvement of university management, including the implementation of reforms related to the Bologna process, also valid for university libraries. The major role of this project is the change, production and distribution of knowledge, and through this the modernization of library products and services.

The modernization of university libraries requires the orientation to the informational dimension of the European space, which includes the following components: coordination and cooperation efforts in facilitating access to information; developing and implementing strategic policies regarding information literacy; the mobility and training of librarians for the development of innovative libraries in support of education and lifelong learning. In order to achieve these objectives, the Scientific Library of the Academy implemented a second international project with the title ***Library Network Support Services: modernizing libraries in Armenia, Moldova and Belarus through staff development and reforming libraries (LNSS)"*** in the period 2015-2018. It was a project implemented within the Erasmus + project funded by the European Commission. http://www.aap.gov.md/biblioteca/article/library-network-support-services-lnss#.

The main objective of the project was to consolidate and modernize libraries, to improve the competences and skills of library and academic staff from higher education institutions in Armenia, Moldova and Belarus, by developing innovative libraries that support education and lifelong learning.

Thus, by implementing these two projects, the library aims to promote innovation in the professional development of library staff, to undertake a wide-ranging reform of the library through the development of staff skills, information services, access to national and international information resources, creation of networks and partnerships between libraries.

In both projects, the partners collaborated and disseminated knowledge for all partner university libraries. The main activity was to strengthen the capacity of librarians and through them that of the teachers and students from higher education institutions, by developing the skills of using information for study and research. Through training

activities, workshops and summer schools, the community of university librarians from Moldova and from the partner countries, created a space for professional debates and exchange of experience, and thus developed internal networks in the field of information services. Communication through the web page of the project "*Modernization of Academic Library Services in Moldova*" https://newinformationservices.wordpress.com/ and *Library Network Support Services: modernizing libraries in Armenia, Moldova and Belarus through staff development and reforming libraries* https://lnss-projects.eu/amb/ also supported the efficient operation of both domestic and international networks. At the same time, the dissemination of information on project activities at international conferences, the study visit to university libraries in Norway, Germany, Greece, Ireland, Belarus and the trainings held by international experts offered to the academy librarians access to the international network " (Neaga 2018).

Within the LNSS project, librarians were trained to strengthen management, innovation and accessibility capabilities in libraries through strategic planning and policy development. Thus, the modernization of higher education institutions was pursued through the implementation of an innovative training program as part of a curriculum incorporating a range of relevant and modern library staff development modules that respond to the most urgent training needs of the 21st century librarians. Programs have also been developed and implemented to develop research skills in libraries to help users identify, locate, evaluate and, effectively and ethically, use information in daily life for lifelong learning and knowledge based society. Therefore, a series of training activities were carried out for librarians, in which all stakeholders were involved for the exchange of experience in order to improve the librarians' skills and abilities. This has influenced the quality of higher education and scientific research. Librarians know English better and strengthen communication within the networks created, both in the Republic of Moldova and abroad. Thanks to the results of the project, the university community is more aware of the importance of the activity of the university libraries

During the implementation of the projects "Library Network Support Services (LNSS)" and "Modernization of Academic Library Services", the libraries participating in the project formulated missions, visions, values, elaborated strategies and policies of institutional development, promotion programs of resources, products, services (with new promotion elements such as educational video tutorials, etc.). The trainings during the workshops, the summer schools in Romania, project meetings,

information and documentation visits, exchange of experience, etc., all had a positive impact on the development and consolidation of the professional competences of librarians. Subsequently, the competences obtained were applied in practice in each library participating in the project. And as mentioned by S. Ghinculov, PhD, coordinator of the project "Modernization of Academic Library Services in Moldova", " ... this project has the potential to improve the activity of university libraries in the country. The way in which the training actions are structured is very convincing and they seem to be important so that the partners participate in international research…" (Sobieski-Camerzan 2018).

The impact of international projects on the Library of the Academy of Public Administration has been demonstrated by the creation of new products and services with a lasting impact on the academic community, which include:

- Following the professional development of librarians within the projects, a wide range of modern services have been implemented, such as Information Literacy, Digital Library, Ask the Librarian; Proposals for purchases, online thematic exhibitions; selective dissemination of information; developing and disseminating newsletters regarding recent acquisitions; Access to databases;
- To facilitate access to the library's services, resources and products, the APAM Library website has been modified and updated in accordance with the requirements of international standards in the field and the information needs of the users, thus making the site a platform to facilitate access to resources, products, and information services of the library: http://aap.gov.md/biblioteca/;
- As part of the LNSS project, the Library of the Academy of Public Administration organized several training activities in the field of library management; innovative services for the 21st century library, English for specific purposes, in which 142 librarians and academic staff were trained. Also, the results of the training activities within the project "Modernization of University Library Services in Moldova" were disseminated and applied in practice to librarians and the academic community of APAM.
- As a result of the competences obtained in the training activities regarding the elaboration of the strategy for the development of the university library, carried out by the Pro Community Centre NGO, the Strategy for the development of the APA Library 2017-2020 was written and approved within the APA Senate meeting on October 19, 2017.

The purpose of the strategy was determined by the process of training, research and professional development within the APA, focusing on modernizing the information services of the library and the efficient use of the information resources.

- In order to modernize the services of the APA Library, new physical and virtual spaces were created in accordance with international standards (Multimedia Room, spaces for individual and team work, spaces for recreation). The library was equipped with modern technical equipment: computers, laptops, tablets, projectors, interactive boards, server, multifunction printers, etc.;
- As a follow-up of the training activities and the consolidation of knowledge within both projects, the course "Information Literacy" was delivered to librarians, civil servants participating in professional development courses, master and PhD students of the Academy. It was updated and adapted to the exigencies of the training environment and the research characteristics of the 21st century;
- By installing and adapting the Koha integrated system to the specific of the library, the electronic library catalog was created, transferring to the electronic medium the activities that make up the collection processing flow, the creation of our own bibliographic database (electronic catalog) and providing remote access to it.
- With the financial support of both projects, access to information resources in open access was expanded by subscribing to a number of prestigious international databases such as EBSCO, subscribed to within the LNSS project, Clarivate Analytic, Taylor & Francis, Cambridge University Press, Sage research methods, subscribed to within the project "Modernization of Academic Library Services in Moldova". Thus the Library recorded positive changes in the efficient use of information resources and services.
- Due to the collaborations and the partnerships formed in both projects, the exchange of experience extended in exploring the development and introduction of innovative services in the library, in particular, of on-line services and Open Access to scientific information, the elaboration and implementation of a digital and electronic strategy for the improvement of electronic library services.
- By conducting a quantitative sociological research, supported by the Pro Community Center, the long-term development trends of the APAM Library were determined under the conditions of the competitive information environment. Thus, the specific of the future of the library

was identified based on the opinions of two categories of respondents: librarians and users (students and teachers). The ideas were approached on several blocks: library spaces, library staff, information resources, services provided, the role of the library in the development of education and academic research.

• The visibility of the Library has substantially increased through the elaboration and implementation of the program for promoting the APA Library: media information (articles in newsletters in the specialized press, interviews, etc.), information during professional meetings, ensuring visibility in social networks, feedback from end users, other stakeholders, colleagues, decision makers. Also, a substantial impact on the increase of the role and the livability of the Library in the society has the ”National Awareness Day” with the generic: ”Your Library - your progress”, established on April 23, 2017 within the project ”Support services for the network of libraries: modernization of libraries in Armenia, Moldova and Belarus through the development of library staff ”, which will be marked every year by the libraries in the country (Sobieski-Camerzan 2018) .

• In order to promote the new paradigm of Open Access and to disseminate the results of scientific research within APAM, the “Institutional Policy of the Academy of Public Administration on Open Access to Information” was written and approved by the Senate (December 12, 2017), as well as the “Regulation for the organization and operation of the APA Institutional Repository” (25.02.2018).

• Dspace library specialized software was applied and the APA institutional repository was created: “Institutional Repository of the Academy of Public Administration” (IR APA), which offers Open Access to the content of the didactic and scientific works elaborated under the aegis of the Academy http://dspace.aap.gov.md/;

• In order to facilitate the use of the self-archiving service, the video tutorial was developed for the Academy’s researchers: “Self-archiving in the APA Institutional Repository”;

• During the same period, the Open Access Policy of the scientific-methodical journal “Public Administration” and its Indexing in the DOAJ (Directory of open access journals) database was approved, 16 June 2016.

• In order to promote Open Access to scientific information, the APAM Library is part of this global movement by organizing various activities for the Academy community during the International Open Access Week, which takes place every year in October.

Today, we can affirm that following the implementation of the project „Modernization of Academic Library Services in Moldova" and of the LNSS project, the librarians, working in the library of the Academy of Public Administration, are better prepared for the implementation of modern library services. ,,The projects were successful the librarians working in the academic libraries in Moldova are better trained for running modern library services. This will influence the quality of higher education and research. The librarians will have better English language skills, and will have strengthened their networks, both within and outside Moldova. The general public will have a better understanding of the importance of libraries" (Ghinculov 2019).

Gaining access to new, prestigious databases, the APAM Library has registered positive changes in the efficient use of information resources and services. The focus today is on digital skills training, participation in the creation and development of institutional digital scientific content, promotion of research results at national and international level, participation in projects and development of national and international partnerships.

Certainly, all the activities carried out within the projects had a positive impact in the process of studies and research, the visibility of scientific research, the improvement of the information literacy, the use of new applications, information technologies, by accepting a new rate of modifications under the pressure of global changes.

Today, the library is looking for ways to implement its functions in a situation in which we are witnessing a continuous and endless increase of the speed of all economic and social processes, being combined with constantly changing traditions and innovations in the field of culture. All of these objectively create new opportunities and directions for library development.

In this sense, the statements of library representatives about the future of the library are viable. They claim that the future of the library, like its present, is determined, however, by the human factor. Without a highly professional, creative and positive thinking librarian there will be no successful library and no user with a high degree of training in the field of information literacy. The library will continue to be a promoter of spiritual culture.

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INNOVATIVE SERVICES OFFERED BY LIBRARIANS FOR BĂLŢI ACADEMICS

UDC 027.7:005.591.6

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USARB Scientific Library is a modern, multifunctional information center for education and research, the basis of intellectual development and vocational training, one of the largest and most valuable institutions in the Republic of Moldova and Eastern Europe. It is located in the North, 130 km from Chisinau and 80 km from Iasi, Romania. Founded in 1945, at the same time with the Teaching Institute, it was and remains in a continuous process of development, improvement and modernization, becoming an integral part of the educational process, training and university research.

The library successfully fulfilled its mission, satisfying the multi-aspects information needs of students, teachers, researchers and other categories of users. Through the various sources of information and services offered by promoting various activities, the USARB Scientific Library contributes immensely to ensuring the Republic of Moldova with high quality specialists for the development of national and world science.

Being ”one of the cardinal points of the Bessarabian librarianship” (Rău, Alexe. 2005), USARB Scientific Library maintains with dignity the status of institution as being outside the remunerative category (1993) and the highest category (2006, 2018) conferred by the Government of the Republic of Moldova, located in a unique four-story modern building in the center of the university campus with an area of about 6,000 m2. The Scientific Library performs several functions that influence and enhance its image in the library world: a Departmental Librarianship Center for pre-university and schools libraries from 15 northern districts and Bălți municipality, a Regional Depositary Bank of the World Bank, member of ERM Consortium (Electronic Resources for Moldova) http://www.

lib.ase.md/eifl/, a participant in the International Programs TEMPUS, ERASMUS +, the Partnership of Moldova with Norway and Romania, the Ministry for Romanians Abroad - the establishment of Information Centre of Romania https://cirbalti.wordpress.com/.

SL USARB integrates services, centers, international and private collections. It is equipped with various technical equipment: PC, scanners, printers, projectors, TV sets, interactive boards.

The participation in international projects Tempus – MISISQ, LNSS ERASMUS+ https://lnss-projects.eu/amb/ Moldova's partnership with Norway and Romania https://newinformationservices.wordpress.com/,has not only brought a flow of new ideas, knowledge and modern experiences from the activity of libraries in European countries (Greece, Romania, Germany, Ireland, Norway, Hungary, Belarus. , Lithuania, Latvia), by promoting a series of trainings and workshops with the participation of international experts, but, also was endowed with technical equipment more than 25 000 euros worth.

The activity of the Scientific Library, in 2019, for example, is provided by 40 employees, 53% of them are professional staff, including 95% holders of qualification: 19 - superior degree, 16 - first superior degree and 3-the second superior degree. In the last 20 years Bălți university librarians have published more than 176 works, including over one hundred bibliographies and bio-bibliographies in the collections Bibliographia Universitas, Facultas Biography - USARB, IN HONOREM, Baltic university personalities, Bălți academics, Doctors Honoris Causa, Vestigia Semper Agora, ethnographic bibliographers, 74 of them obtained prestigious awards at institutional and national level (Republican Competition The best works in the field of Library and Information Sciences, USARB Senate Awards, etc.). The library has two specialized publications: Bibliological Confluence (2005) and Bibliouniversitas@ABRM.md (2012), where librarians annually published 70 articles on the Internet, Slide Share portal. Every year, university librarians participate in more than 40 national and international professional meetings and present about 60 scientific papers related the experience and the models of SLUSARB. In order to obtain a professional qualification, librarians studies at professional training courses, during documentation visits and trainings within the projects.

They were awarded by the leadership of the country with Mihai Eminescu Medal, The Order of Work Glory, Diplomas and Awards, including the Ion Madan" National Prize in the librarianship and bibliography field. Fifteen librarians are national trainers within

the Institute of Continuing Education, Moldova State University, 10 librarians are employed every year as university assistants for teaching the Basics of Information Literacy course. Bălți librarians organize trainings and workshops for pre-university and schools librarians from 15 northern districts and Bălți municipality within Departmental Librarianship Center in collaboration with the Ministry of Education, Culture and Research.

USARB Scientific Library continuously guarantees spatial and informational comfort, adequate aesthetic norms for about 7 000 users (2019) in 12 reading rooms (793 seats), 4 loans and other subdivisions, offering total collections of 1 008 018 in 309 116 titles, which is completed annually with 7-8 000 documents in 3-4 000 titles. The registered number of visits per year is 500 thousand, 300 thousand being virtual, the loan over 600 000, including electronic documents.

The most requested are electronic services from the large number of services: Internet access, Wi-Fi, access to the electronic catalog http://primo.libuniv.md/ PRIMO ExLibris (shared catalog of 7 university libraries from R.M.) with more than 400 thousand records (Bălți Scientific Library). The electronic catalog, created in the frame of the Information Services Modernization Project for a quality education MISISQ (2013-2016), in which we were lucky to participate, the LibUniv electronic catalog on the ExLibris Primo platform gave us the opportunity to develop in LNSS, one of the most important services for users: reducing the search time, filtering, downloading, management of electronic shelf, booking online, subscribing for notifications and alerts. The LibUniv electronic catalog is comprehensive, stimulating, accessible, modern, shared - allows users access from one point, anytime, anywhere, to a multitude of informational resources.

Archiving and access to scientific production of the university in USARB Open Research Archive (http://dspace.usarb.md:8080/jspui/) (more than 3.5 thousand indexed works), Digital Library, access to over 100 national and international databases containing over 1800 000 books and 80 000 periodicals, Scanned Summary, Musical Works from vinyl records (MP3 format). For the visibility and increase of rating the scientific results of Bălți university researchers, including by applying scientific-bibliometric indicators, USARB's scientific achievements are indexed in 7 international databases, repositories, open libraries, catalogs and information platforms: Zenodo (USARB Community), CEEOL, IBN, OpenLibrary, Issuu, Calameo, Scribd, Slideshare.

Through national and international collaborations with partners from the Republic of Moldova, Romania, Switzerland, USA, Ukraine, Russia, France, Lithuania, Germany, more than 30 projects of investment have been carried out that have diversified the information offer, including through the opening of the UN Documentation Center, European Union Center, the NATO Point of Information and Documentation, Information Center of Romania.

The Scientific Library website has a positive effect on the provision of new library services. The implementation in stages of the innovations in the library and the information services of the population allows the users to access at a distance a wide range of bibliographic databases, with full text, factual and abstract. The library offers online services from the Library's website (JOOMLA platform). http://libruniv.usarb.md/index.php/ro,It uses web platforms and tools: Wikipedia, Library blogs in dialogue with readers, Professional, the Information Center of Romania.

On the Libraries website, a variety of online tutorials, guides and other teaching aids are displayed to assist teachers, students and pupils seeking, locating, evaluating, and appropriately applying information, including the use of personal reference management software: EndNote, Mendeley, Zotero.

Video tutorials and spots to promote the services, the didactic portfolio of the Basics of Information Literacy course, the reference service *Ask the librarian*, *Proposals for acquisition*, the informative bibliographic bulletin *Recent Purchases*, informative and thematic exhibitions online, thematic resources on domains, or all these are part of the university education.

Almost 400 thousand visits a year, more than 2 million visits register the Library's WEB page. It is claimed that today, in order to survive, each library must focus on the philosophy of services. From a traditional perspective, the decisive success factors of a library are as follows: its physical funds, the number of employees, the size of the building, the number of users in library halls etc.

From a modern perspective though, a library's work can be regarded through a very user-oriented attitude. Then the above-mentioned criteria do not represent an evaluation/assessment framework by which the value of the academic (university) library could be appreciated.

The importance of information services is mentioned in several legislative and regulatory documents, including the Education Code (2014), the Science and Innovation Code (2004), the Law on Libraries (2017), and others.

The library facilitates access to its services for all categories of users, equally without distinction of race, color, nationality, ethnic origin, language, religion or belief, sex, age, disability, opinion, political affiliation or any other similar criterion. Libraries offer special services for the social inclusion of disadvantaged people. The library ensures in its activity the observance of the personal data regime. Library services are improving, diversifying and updating continuously, being linked to social, economic, technological and to the categories of users of the library and their needs.

What does a modern Library do today?

- Studies and respects the identified informational needs of current and potential users;
- Applies a new approach to the implementation of services;
- Provides access to a new type of information previously inaccessible to the community.

And to become as powerful as possible libraries are helped by new ICTs - one of mankind's greatest innovations, that is essential to the success and efficient operation of any system. Via ICT, libraries provide users with adequate informational infrastructure.

Considering this moment, the authors of the LNSS Project, for example, have found strengthening of the technical capacity of the participating libraries very important, with 30% of the financial resources being directed to the purchase of servers, PCs, interactive boards, integrated library systems, as well as new printed informational resources. The Project "Modernization of academic libraries in Moldova" together with the purchase of a laptop, emphasized the access to some of the most important databases: Web of science & incites, Sage Research Methods Cases , Wiley Online Library, Cambridge Journals.

The Collections Development Policy, developed in the LNSS Project, supports the concept of "service orientation" - a correct and balanced development of collections, their targeting and the organizational structure of all library activities to different user groups, adjusted to the needs of our institutions, current tendencies, but also financial possibilities.

Libraries support the teaching, learning and research programs of the founding institution. Due to the impact (ICT), there is a paradigm shift in library services, a change in the mentality and skills of professionals from the information domain. This is why all the projects in which the university librarians from Bălți were involved were focused on the modernization of librarians' knowledge by developing modular training support on the *newest* topics, also oriented towards user services support.

Some information specialists confirm that libraries are in the field of services and the most important product in the library is the service. Without services, libraries cannot be distinguished from museums or are a combination of a maze and a book store. The service is a ubiquitous ethic of the profession of librarian.

Specialists in the Librarianship domain distinguish three levels of service structure in libraries:

- First level - personal assistance provided to users by librarians.
- The second level is represented by indirect services. This approach requires librarians to create the environment in which users would help themselves.
- The third level is the support that librarians provide to users through technology resource management to create an accessible, useful and user-friendly environment.

Each of these levels - direct and indirect services and the technological environment - is based on collaborative contributions from professionals: librarians and computer science specialists.

The main goals in the user- centered library are quality services and good practices.

Dimensions of services

- Materials: appearance and physical facilities, equipment, personnel and communication resources
- Reliability: the ability to perform the promised service reliably
- Responsibility: Providing prompt services
- Assurance: employees' knowledge and professional satisfaction, their ability to inspire trust and confidence
- Empathy: individualized attention paid to users

Through the medium of the services can be judged how the role of the librarian in this informational-educational environment has changed. Users highly value the services and products that depend on the professionalism of librarians, their knowledge, their active position in organizing and promoting services and products. The success of the innovations in organizing the information activities of the library depends on the staff who, together with the information itself, it is the most important strategic resource.

Traditional services have not disappeared, being offered in a new way: Loans - by Circulation - much faster; Information and references: catalog, databases with all facilities, reference service Ask the librarian, Reading Room Assistance in using the library, Displaying current purchases,

Recent Acquisitions Bulletin, Traditional and on-line exhibitions of recent acquisitions with cover scans, Bibliographic and Abstracts Descriptions, Information on periodical publications subscriptions with links to content, Selective Dissemination of Information for Researches (DSI) and Differentiated Service for the Administration (SDC), Assistance in searching information in the catalog and databases.

It is known that the future belongs to libraries integrated in national and international systems, to those libraries that offer unlimited possibilities of information, information services and products as different and as sophisticated, but at the same time very accessible.

Direct services refer to the basic services of the Library, and indirect ones - access to the electronic catalog; to information resources on different media; to electronic collections; electronic loans; reference services; formal and non-formal training for Information Literacy; exhibitions, cultural – educational – scientific programs; providing space for non-formal communication, individual study, group activities;

Indirect services: Printing documents; Scanning documents / images and send them to external memory or via e-mail; Recording information on external memory media provided by the library; Filming private events in the library or other situations of using as a library movie set for commercial purposes or for other purposes that are not related to the activity of the library; Editorial services (collection volume, editing, layout, etc.) according to the contract; OCR text recognition operations.

The Library is place to socialize, creates and shares educational resources and products in virtual spaces: Facebook, Twitter, YouTube, Linkedin, Pinterest, Google+, Flickr, Instagram. Increased activity of libraries in social networks gives positive results for promoting the library as culture and reading centers. Social networks are considered as another opportunity to provide library services and information in two aspects: as a space for traditional library services and as a tool for creating new forms of interaction with users. The use of telephones, smartphones, laptops, tablets in the remote user service allows the user to receive non-stop or 24/7 information, wherever cellular communication is available. Mobile service is one of the promising areas of library activity information.

Library information systems help librarians meet users wherever they are: interactive utility services, including social media services, blogs, wikis, etc.

The more complex the electronic possibilities of providing information, the more complex they become, the more urgent the need for all members of the university to benefit from the new opportunities.

USARB Scientific Library, an innovative institution, support for education, research and lifelong learning, aligns with the global trends for the provision of modernized library services, creating a unique information space for the academic environment in Moldova:

• USARB librarians promote the course the Basics of Information Literacy: 30 hours - 1 credit, included in the curricula for all university specialties as a compulsory discipline for training information skills and competences. Annually the librarians promote about 250 hours in 25-30 academic groups for the students of the first year from all the Faculties, as well as for the students of the Pedagogical College and the Republican Theoretical High School ”Ion Creangă”. Hours of Information Literacy are also promoted for teachers, masters and doctoral students.

• Evaluation of results and performance in research, based on scientrometric data, user facilities: Web of Science, Scopus, Google Scholar facilities;

• Determining the Scientrometry indexes by applying the Publish or Perish software;

• Determining Impact Factor (IF) of journals relevant to the research field; Presenting

• (de-vizu and online) of ISI rated journals in available databases and periodicals collection, especially from the Journal Donation Project collection (New York, USA);

• Assisting students and researchers in the process of writing a research paper and publication (citation standards and writing bibliographic references, reference styles, etc.);

In order to assist USARB university researchers to pursuit their publications and other scientific products, the Scientific Library has initiated a project to register USARB university professors in ORCID, because, both librarians as well as USARB researchers frequently meet difficulties in performing accurate searches and sharing in databases or people with ambiguous names, it is necessary, for each researcher to benefit from an ORCID ID.ORCID (Open Researcher and Contributor ID) attempts to solve this problem by providing researchers with unique 16 digit author identifiers and serving as a central registry that allows for automatic links between researchers and their activity.

ORCID register is available free of charge to individuals who can obtain an ORCID identifier. Individual researchers receive a free ORCID number starting in 2010, while universities, companies and other organizations will pay subscription fees. Executive Director Laurel

Haak is convinced that when scientists see the benefits of ORCID, it will become the de facto standard author identifier in research, just as it has become the digital object identifier (DOI) for documents and data. Until present about 280 organizations, funding agencies and publishers became members of the ORCID committee.

Although there are many author identification services, the USARB Scientific Library chose to work with ORCID IDs ,, because, ORCID is run by a non-profit company, unlike other existing systems with a rotating board with more than 1059 member organizations and 7 176 281 ORDID IDs. In addition to books and book chapters, ORCID can also identify datasets, figures, your thesis, blogs, correspondence, funding awards and many others.

The role for libraries in promoting ORCID is to enable each librarian in any institution to encourage and use several strategies to raise awareness of researchers in order to register and use ORCID IDs.

Researches academics have available a set of services to manage data and other contents.

• Use of bibliographic reference management software: EndNote, Mendeley, Zotero (adding, organizing, citing references); Training and assistance in the use of personal bibliographic reference management software: EndNote, Mendeley,

• Useful open source document management software and data archiving (Figshare), a platform for publishing research data. Data archives include services Figshare and Zenodo , where researchers can self-deposit research data with light documentation and minimal validation. Figshare is a service that allows the deposition of any electronic information for owning and sharing. Since 2011, it has supported researchers from all disciplines and given a digital object identifier to every document. It allows to bring credit to the authors of the documents. Academics can open an account without any cost and upload files with a size up to 5 GB. Unlimited data storage space for public data is also available. For private archives, the service offers several sharing alternatives (private link, collaborative spaces, and collections) that are accessible from a profile page.

• Communication of information, ethics of information use, methods of avoiding plagiarism.

• Images, photos and videos on Flickr, Instagram and so on for sharing photos and videos online;

• Elaboration of electronic resources on request (website, blog, database, electronic archives, digital libraries);

• Mobile telephony services. Librarians rely on innovations to effectively reach users.

Summarizing the above, it can be judged that today the University Library has the right to position itself as a modern information center, which uses well-defined integrated systems ALEPH, develops online services, works with local resources and at a distance, offers a wide range of services and services based on Open Access to Information, Open Education, which also allows feedback to users.

The participation of libraries in International Projects has opened a new page in their progress, in the development of the partnership, in the consolidation of the potential, the tendency to transform into the rhythm of the time and to remain as useful in the academic space and beyond. The implementation of these projects brought an influx of new ideas, knowledge, experiences, good practices, mobility, additional funding. The library equipped with this, however, conveys, with certainty, the idea of quality, innovation, present value and time of study.

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INFORMATION LITERACY IS AT THE TOP OF THE AGENDA: FROM THE EXPERIENCE OF THE SCIENTIFIC LIBRARY OF THE ACADEMY OF ECONOMIC STUDIES OF MOLDOVA

UDC: 027.7:[371.3+004.657]

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Nowadays information is a major component of scientific and technological progress, a vital element of creativity and innovation, education and intellectual activity, an important resource for social and economic development. Actually, it is difficult to imagine a specialist who does not refer to various information resources. Moreover, an educated professional and a successful person must necessarily have certain skills of information retrieval and information processing. Thus, in modern society Information Literacy becomes an integral component and a mandatory part of professional knowledge and general culture.

The spread of new information technologies in all spheres of society, the complexity of access to information and network resources put forward targeted formation and development of Information Literacy of users as one of the priorities.

Information Literacy of society and the individual should provide an opportunity for continuous education of the person and increase his responsibility for decisions. In the first case Information Literacy is a mean of social protection of the individual, capable of self-building knowledge, changing the scope of activities, regulating of their own behavior. In the second case Information Literacy is a way of protecting society from ill-considered human actions, a guarantee that fundamental decisions in any sphere (social, economic, technological) are made only after the deep analysis of all available information.

Modern society needs people who are able to change their profession, make their own decisions and alter stereotypes, ready for self-development and self-education due to the high mobility of the labor market. Consequently, life is increasingly demanding that universities become more dynamic, flexible

and sensitive to social, scientific, technical, technological and environmental needs, innovation and international competition. Educational systems of developed countries strive to create a common educational space and agreed standards for conducting educational activities.

A special role in the formation of Information Literacy is undoubtedly assigned to the university library. It is well known that a library is a place where sources of information are concentrated. The peculiarity of the university library consists of the focusing on information support of the scientific and educational activities of the university, careful storage of knowledge accumulated by mankind and active assistance in acquiring of professional knowledge.

The library is an equivalent structure of the University, providing information support for all activities of the higher education institution. Information resources of the library characterize the level of the ensuring of educational process, scientific and pedagogical activity. Therefore, the degree of development of information technologies in the library, its inclusion in the information space of the University, the volume and nature of the electronic resources of the library, the availability of remote access for users to world information resources makes the library an indispensable and essential mediator in research and teaching activities. Thus, the library supports the entire educational and research process with its information resources.

Speaking about the experience of the Scientific Library of the Academy of Economic Studies of Moldova, we would like to emphasize that the formation of Information Literacy has always been one of the important directions of the library. In fact, the Bibliographic Department has been giving bibliographic lessons to first-year students since its organization. However, the participation of our library in the projects "Development of new information services for Moldovan Higher Economic Education" (2012-2014), "Modern Information Services for Improvement Study Quality" (2013-2016) and "Modernization of academic library services in Moldova" (2016-2018), allowed us to impart the scale and grate significance to the activity, helped to move to a new level of teaching and made this area of bibliographic practice a priority.

In the process of Information Literacy training users acquire the ability of formulate their information needs adequately, search for the necessary information in the whole set of information resources effectively, process information and create a new one qualitatively, select and evaluate information properly and have the ability to communicate information (Landoy 2014). All of the above is based on the realization of

the role of information in society, knowledge of the laws of the information environment and understanding their place in it, as well as the possession of new information technologies.

We are well aware of modern ideas of specialists about Information Literacy and support them strongly. Accordingly, this direction of our activity corresponds to contemporary concepts (Lau 2006, Repanovici 2012).

Undeniably, librarians also require new and multilateral knowledge to meet the information needs of users, promote innovative services and develop information skills. They need to know different methods of accessing information, computer tools, databases, Internet, search engines and accumulate certain pedagogical skills. This activity implies a great responsibility because the modern students have a good training in the field of new technologies. Communicated knowledge should be of genuine value, accessible, attractive and meet their expectations. Furthermore, particular pedagogical and psychological qualities are also necessary in the activity of information assistance. It is necessary to take into account the level of preparation of the beneficiaries, their accessibility of information perception, the tact and professionalism of the specialists who transmit information.

In order to increase the efficiency of the economic education, research and development of the informational skills, literacy syllabuses were developed and implemented for all categories of users: first-year students, Master's degree students, PhD degree students and university teaching staff [2].

The syllabuses were elaborated based on the results of the research of information needs, educational and promotional materials and in collaboration with the university teaching staff. The syllabuses consist of the following parts:

- Data about the program
- Data about the course
- Overall estimated duration (hours/semester teaching activities)
- Preconditions (where applicable)
- Conditions (where applicable)
- Course objectives (coming from the specific accumulated competencies grid)
- Accumulated competencies
- Contents
- Assessment

All training materials are placed on the library site and on the SlideShare Web Platform. Students have free access to all elaborated tutorials, and librarians can assess how often they are accessed. At the

moment PowerPoint presentation "Models of presentation of bibliographic references according to Standard SM ISO 690: 2012 "Information and documentation. Rules for presenting bibliographic references and citing information resources" has 4765 views (2012), the presentation "Ethical ways of using information" has 2167 views (2013).

It has become a tradition for librarians to attend regularly with the lectures the meetings on the theme "Thesis for completion of studies: quality and originality" which are annually held for the Master´s degree students, Bachelor degree students and lecturers.

Librarians need a special training for the actions of informing the teacher stuff regarding the visibility of the scientific publications, using of the citation and writing standards of the bibliographic references, especially the familiarization with MS SR ISO 690: 2012 „ Information and documentation - Guidelines for bibliographic references and citations to information resources". Bibliographical consultations are organized with the researchers. In the framework of the event on the topic "Meeting of the department at the library" in which the library employees present models for the elaboration of bibliographic references in the written works and explanations with reference to the standard; models for the elaboration of bibliographic references according to the structure of the report of the scientific and innovation activity; intervene with clarifications at each request (Habaşescu 2018). At the end of each year librarians are involved in writing of the report on scientific and innovative activity, the annex "List of published scientific papers".

The activity of informing the academic community about the scientific information resources has become an indispensable process in the activity of the Scientific Library of AESM that is a coordinator of the eIFL Direct Moldova Consortium and has promoted the appearance, widespread dissemination of electronic publications and their integration as a component part of library collections in the Republic of Moldova. Currently, our library offers access to 16 databases, most of which are full-text licensed scientific resources which can be accessed on the Scientific Library of AESM Web page, and the EBSCO databases have become an integral part of the PRIMO platform (Ghinculov 2013).

Another extremely important activity which permits to ensure the visibility of the research in AESM is broadly promoting Open Access to scientific publications achieved by publishing AESM journals in the Directory of Open Access Journals and self-archiving in AESM Institutional Repository "IREK - AESM: Institutional Repository of Economic Knowledge".

The LibUniv electronic catalog on the ExLibris Primo platform is advertised both within the lessons of Information Literacy and various meetings with the researchers of our institution. "Guide for the use of the Shared Catalog of the university libraries of the Republic of Moldova" was distributed during these meetings. The purpose of the guide is to highlight all the possibilities offered by the Shared Electronic Catalog.

Particular attention is paid to the protection of intellectual property and copyright in AESM. This fact is confirmed by AESM policy in the field of plagiarism prevention, which is reflected in certain provisions of the "Regulation on the prevention of plagiarism among students / masters". The plagiarism checker "Antiplagiat" that analyzes the written works and reports, their degree of coincidence with other sources has been elaborated and implemented in AESM in order to prevent and combat plagiarism among the young students.

Information Literacy is a long-term activity which will exceed the duration of the projects but the partnership and the activities started within them will persist and expected results must be integrate into important documents of the partnership institutions. Expected results are reflected in the "Development Strategy AESM Scientific Library [2017-2020]" (2017), approved by the decision of AESM Senate on March 29, 2017 and include the following:

Trained and motivated users

- Users with high level of skills in Information Literacy;
- Curriculum in Information Literacy integrated at university level;
- Motivation and loyalty of the user

Easily accessible information system

- Open access to various information resources;
- Digitization of the scientific heritage;
- Developed Institutional repository;
- The Scientific Library of AESM - modern service provider.

Thus, the experience gained during the training of the students allows us to conclude that the students need systematic and comprehensive knowledge in order to access and use the information ethically, have the necessary skills in the research process, develop the search skills in using online catalogs, know the differences between various sources of information and the possibility to evaluate these sources objectively and critically. The accumulated knowledge constitutes a solid support for study, key factor in research and renders a beneficial influence on the academic success.

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COMMUNICATION AS A MEANS OF RELATIONSHIP WITHIN UNIVERSITY LIBRARIES

UDC 027.7:316.77

Natalia SUVAC, Aliona PROCA

The university libraries have long been recognized as the "hearts" of their universities. To fulfill their mission of supporting the educational objectives of their parent bodies, which include teaching, learning, research and cultural development, the libraries had to develop and maintain standard books, journals, and audio-visual collections and services. Today university libraries must be information systems. The library of today should not merely store documents and preserve them, it must also devise means by which the contents of such documents can be rapidly and effectively transmitted for use.

Rapid expansion of a mass of diversified information is occurring, which has received the name "information explosion". Although traditional channels of communication will remain important, the new information and communications technologies hold great potential for broadly disseminating knowledge.

The importance of communication in the current conditions of development is constantly growing. Communication in organizations meets the goals of establishing relations and cooperation between people, without which the labor process, professional activity and management, as well as personal progress, are unthinkable.

The effective communication and the efficient use of the communication methods directly affect the performance of the organization; it is one of the basic conditions and necessity for the successful achievement of the objectives that the organization faces.

The term "communication" has a universal definition, because in modern literature we find many interpretations. At the same time, most authors perceive communication as a process in which information flows through the symbol system for its precise conception (Чамкин 2013).

Communication is the most important factor and an indispensable means of functioning of university libraries. The most successful are the libraries where the communication system is well built.

Education, as an important factor in the evolution of society, is undergoing radical changes worldwide today. The quality of education at the present stage is largely determined by the ability to access the necessary information (Cheradi 2014). The university library, being one of the active participants in the educational and scientific process, offers the user the opportunity to get the latest information in the traditional and electronic format, about documents in the library collection and about external ones needed in the educational and research process.

The university library, on the one hand, contributes to the process of studies and research, on the other - it becomes an important link between the provided information and the users. Within the communication system of the educational institution, the library represents a means of connection in the process of informational consumption that ensures the development of knowledge, but communication is one of the fundamental conditions of the good development of the educational process.

The communication model of the university library consists of the following elements (Fig. 1):

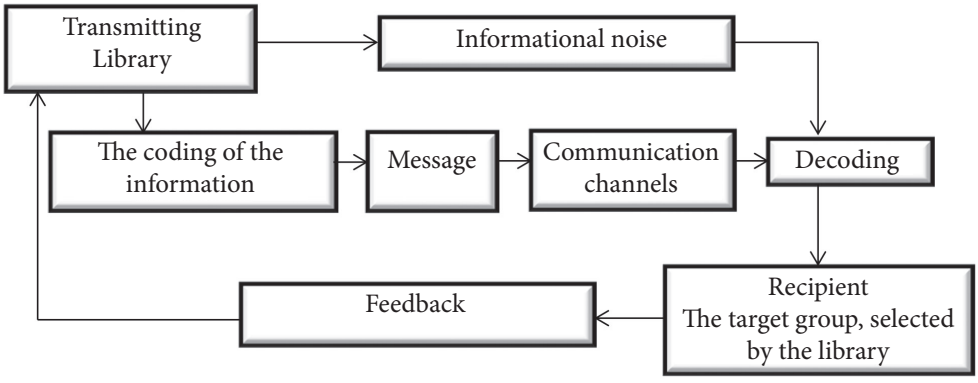


Fig. 1: The communication model of the university library
Source: Adaptation according to sources 4 and 5

- source of information (transmitting), in this case - the library, establishes a connection both with its users and employees (internal communications) and with the external public (external communications);
- recipient - the target group, selected by the library in the communication process;

• message - the information, which the library transmits in the form of information services and products for consumers: rules, instructions, circulars, interviews, telephone calls, meetings, electronic messages, etc. for its employees; articles in periodicals, publications in the media, advertising communicated to external beneficiaries;

• the coding of the information is performed for the efficient transmission of the necessary information and for a deeper understanding by the recipient with the help of symbols, characters, image, text, etc.;

• communication channels include a variety of technical means, used to transmit information (library collections, databases, Internet, library site, social networks, telephone, advertising, etc.);

• decoding - demonstrates the effectiveness of the transmitted information.

Modern university libraries are not only repositories of knowledge, sources of ideas and ideas, but also an information center providing services for users. The main tendency in recent years is to extend the services for users based on information technologies and to provide access to different types of information.

To analyze the communication system in the university library, we identify the target audience with which the library communicates (Fig. 2).

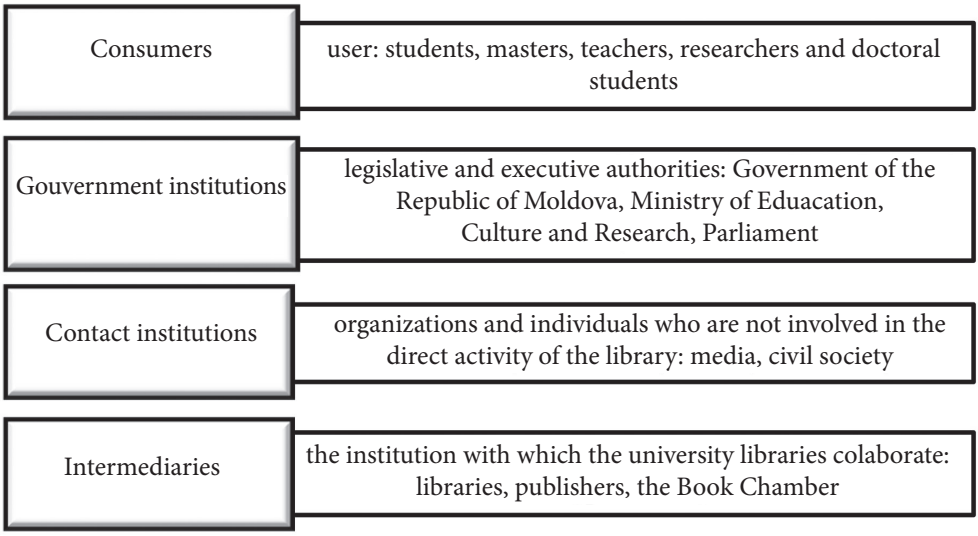


Fig. 2: The target audience with which the university library communicates
Source: elaborated by authors

The main *consumers* of products and services of the university library are users: students, masters, teachers, researchers and doctoral students.

The communication with the users is carried out through the following sources:

- Consultation of documents in the reading rooms, supervised and equipped with adequate equipment;
- Home loan and interlibrary loan;
- Professional consultations offered to users by librarians;
- Transmission by electronic mail of files with bibliographic lists of new publications received by the library;
- Activities with students, masters and teachers at the beginning of each academic year to promote the services offered;
- Consultation of the site;
- Virtual exhibitions on the site;
- Informing users through social networks;
- Visual means: posters, leaflets, placement plans and indicators, graphic symbols that aim to meet the information and promotion requirements of library services.

Today it is recognized that access to information in the university library is ensured by the creation of digital libraries, not only due to the presence of a collection of electronic documents, but through a system that implements a unique way of storing and accessing information.

Currently, electronic catalogs have been created and operate in university libraries - a tool with which users can access information about the location and availability of copies, on the basis of which they consult and borrow publications found in library collections. At the same time, users have the opportunity to refine the search results by choosing different criteria: language, creation date, author, subject. Electronic catalogs allow you to personalize your work environment by saving resources for creating personal bibliographic lists, saving information search results on an electronic shelf with the ability to search them at any time.

Online catalogues provide additional searching possibilities, such systems can communicate with one another about which books are held in the libraries and use the computer to borrow various materials from many other libraries through interlibrary loan systems.

Information and communication technologies allow the dissemination of information about new acquisitions in library collections for members of the university community. At present the university libraries offer to

its users through the websites online reference services, open electronic archives (institutional repositories), visualization of information related to the loan situation, electronic document delivery, etc. Many sites offer users to participate in the development of collections, to propose books, magazines and databases.

The collections are completed according to the study plans in close collaboration with the teachers and users. For a better understanding of the users' needs, communication is considered to be the most effective alternative (dialogue with teachers, close links between different university services, relations with other profile libraries at national and international level).

The websites of the university libraries are also used as a means of training the students. In their menus are presented various online training programs, tests for verification of knowledge, guided tours, online trips, etc.

As a result of this communication the library expects from its consumers the more active use of the information products and services offered. For the librarian it is very important to listen and hear the user. Continuous communication with users generates a feed-back. Information received from users (opinions, thoughts, appreciation, dissatisfaction, proposals) is the basis of new development policies, in order to keep everything good and to create a prospective model of university library appropriate to the current and potential requirements of its users. The librarian must aim to find a different communication path for each type of user in order to solve questions and problems that may arise during the communication process within the library. The partnership between users and librarians is ensured by the library manager, who will determine them to understand each other, to act in a team, to communicate permanently.

The success of a university library depends to a large extent on its relations with government institutions, local communities, the media, etc. A library cannot operate outside of the business environment, without maintaining public relations. In this case, libraries use several methods of Public Relations. Public Relations as a form of communication has an informative character, being in fact a personalized and appropriate communication, with a unique and credible message through: spokesperson, press conferences, advertising materials, special events associated with involvement in sponsorships, donations. The choice of methods depends on the target audience and the purposes of library communication.

Government institutions - legislative and executive authorities (Government of the Republic of Moldova, Ministry of Education, Culture and Research, Parliament). From this institutions the library expects to establish an extremely favorable relationship.

Contact institutions - organizations and individuals who are not involved in the direct activity of the library. These are the media, civil society and others that the library informs about possible services provided, draws their attention to the events of the library activity with the help of the means used by public relations: symposia, speeches, interviews, book launches, conferences, briefings and others. The library delivers personalized, trustworthy messages. The collaboration of the university libraries with the contact institutions should contribute to the most active development of the library, to create a positive image and sympathy towards the library and its products and services.

Intermediaries - the institutions with which the university libraries collaborate (libraries, publishers, the Book Chamber). In this case, the library demonstrates productivity and cooperation through such communication tools as presentations, exhibitions, round tables. As a result, a response is expected from this recipient in the form of a partnership, an atmosphere of mutual understanding, a common assistance in performing the functions of the library.

One of the main factors in the communication process is the *library staff*. In direct relation with the public the library staff must have a special training of a psychological and didactic nature, aiming at the way of presentation and inter-personal communication. The librarian must demonstrate a broad horizon of general culture, ability to clearly and systematically expose knowledge and information in different fields of science, be well-oriented in social-political events, master the theory of education and teaching methods, cultivate pedagogical skills and aptitudes, to prove much pedagogical tact, patience, intellectual balance, creativity and sense of humor.

Professionally, communication is an indispensable component of career success. In this context, the act of communication becomes more than an element inseparable from our existence - an instrument for the promotion of one's own qualities, abilities and knowledge. A librarian, a good professional, cannot be conceived today outside the interaction process, the latter manifesting itself both within the served community and the professional one (knowledge, skills in the field of communication

being important in the context of building the Information Society and Knowledge). The staff of the must increase the productivity, to improve the psychological climate in the team.

University libraries have always been, and will be, areas of intense communication. The university library today is a vital center of the institution, a living and dynamic body, which goes beyond the simple function of document storage, and is a real support for the educational process and for research, an active center of information circulation, both inside the university, as well as within the national academic space, an instrument for training and professional and cultural perfection of the staff. The importance of the library in carrying out valuable academic activities remains overwhelming, but the functions and services offered by it are rapidly diversifying.

The role of the university library increases in connection with the modernization and continuous computerization of higher education, changing the demand for educational services.

The library is obliged to respond to changes in the requirements for full user satisfaction. The university libraries can be transformed in to a new information services unit, providing electronic cataloguing, electronic on-line, public access catalogue, electronic acquisition and serials control, electronic inter-library loan and electronic circulation functions. Effective communication is an important factor for the successful development of university libraries.

Communication becomes for the university libraries, for their staff, more than an instrument for development and ascension; it becomes a new philosophy of the existence of the Library and the Librarian. The future of libraries depends on the existence of demand for their services. We can say with certainty that there are absolutely no perfect communication systems. The university library must build its own communication model in order to achieve its mission and objectives. Such a model should become a dynamic system, in which participants constantly interact through communication, creating the necessary contacts, transposing the processes of change. Successful communication can be realized where all the components of the communication model will be carefully analyzed.

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