Sharing resources of Russian libraries: 10 years of consortia services development

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Abstract
Purpose – The purpose of this paper is to demonstrate the current situation and history of cooperation and resource sharing in Russian libraries. The resources and services provided cooperatively are described.
Design/methodology/approach – A narrative combining description, surveys, analysis and evaluation.
Findings – Fundamental changes have occurred in Russian libraries as a result of the development of consortia services development, particularly in resource sharing.
Research limitations/implications – Digital libraries and databases subscriptions were not within the scope of this study.
Social implications – The paper demonstrates the efforts of many libraries cooperatively producing services at a national level.
Originality/value – One of the few articles to describe the current state of resource sharing and consortia development in Russia.

Keywords Cooperation, Library services, Document delivery, Databases, Consortia, Resource sharing

Paper type General review

Introduction

The vast area of Russia has given rise to a large number of libraries. As a result, interlibrary communications face several basic problems. Creating a reliable infrastructure for efficient resource sharing was hardly possible before the new information age. Now that libraries have become part of the Internet, they are potentially accessible and searchable from any computer connected to the network. Effective and efficient resource sharing between libraries thus became possible. This article will describe the developments and activities of the Associated Regional Library Consortia (ARLICON)[1], one of the most effective resource sharing networks in Russia.

ARLICON, founded as a non-profit organization in 2002, is one of the best in Russia for large-scale interlibrary communications and resource sharing. Its mission includes the promotion of new quality standards for library services as well as the introduction of new networking and information and communications technology (ICT). It has a sustainable existence in terms of the number of partner libraries, the variety of services offered and the improvements it has brought about in workflows and interfaces. From the beginning, the partnership was open to all libraries from any region of Russia. Now, it consists of 14 library consortia linking about 200 libraries which are the partnership members; these create the backbone for connections between libraries. The electronic catalogues of all these libraries are accessible via a single search from the ARLICON portal. All members must ensure compatibility of access to their catalogues using the agreed common standards.

ARLICON also provides a cooperative platform for about 500 other libraries which are not necessarily members. These libraries cooperate to produce a specific service or resource and are called "service participants". All participating library have access to the joint resource for free or with special conditions.

Many libraries only use ARLICON services without being obliged to process some part of work within the service, these are called "service users".

In total, about 1,000 libraries, including all major national and federal Russian libraries, engage in ARLICON activities either as "participants" or as "users".

Service improvements have been achieved by the synergistic actions of many partners, sharing resources and implementing new ICT-based workflows on the ARLICON platform. The single entry point through the ARLICON portal makes all services easily accessible. Although ARLICON covers Russia and countries of the former Soviet Union, the services are available to libraries from any country. However, some of the services require authorization.

Of course, ARLICON is not the only library alliance in Russia. Below are some of the more important national unions:

- The Russian Library Association[2] covers a wide range of issues, typical of a national library association.

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- The LIBNET[3] service is financed by the Ministry of Culture of the Russian Federation and covers mainly public libraries. The LIBNET center holds the union catalogue of Russian libraries consisting of records from the Russian National Library, the Russian State Library and some others. This resource acts as the Russian national bibliography and is used for the copy cataloguing of books.
- The National Electronic Library[4] is the repository of Russian e-books. Currently, it links three libraries: the Russian State Library, the National Library of Russia and the Russian National Public Library for Science and Technology with more to come. The project is also financed by the Ministry of Culture of the Russian Federation

ARLICON differs from other Russian library alliances in that it concentrates on library resource sharing.

The Russian context

The treasures of Russian libraries are associated by foreign partners with only a few major ones in cities: the National Library of Russia in St. Petersburg, the Russian State Library in Moscow, the Library of Foreign Literature in Moscow, the Library of the Russian Academy of Sciences in St. Petersburg and several others. The collections of many other libraries are hidden, unknown and not accessible.

As noted above, the vast expanse of Russia has led to a huge number of libraries, 113,981 in total (OCLC, 2014). Such a large number has generated particular problems with interlibrary communications. New technologies and the Internet should have given a new breath of life to library services, but figures show that even in 2012, only 42 per cent of public libraries had an Internet connection (Ministry of Culture of Russian Federation, 2014). In 2014, about 40 per cent of libraries with Internet access was quoted by Vladimir Firsov, the President of the Russian Library Association, (Drapeko and Firsov, 2014).

Rethinking the library interconnections was started by a group of experts, including specialists from St. Petersburg State Polytechnic University (SPbPU), in the mid-1990s, (Plemnek and Sokolova, 1996a). At that time, Russian libraries had their first experience of library automation when several domestic library management systems (LMS) appeared: Biblioteka, MARK-SQL, etc. However, none of them supported MARC format or international protocols for interlibrary communications. Those systems were designed only for local use. Step by step, a common library space was developed accessible to all electronic catalogues and library collections, and the first library consortia were created (Plemnek and Sokolova, 1996b). RUSMARC – the Russian version of Universal MARC (UNIMARC)[5] – was developed in the late-1990s and became one of the key elements for requesting from the LMS. RUSMARC was supplemented by Z39.50 with a list of mandatory entry points for bibliographic records. At the end of the 1990s, the first Z39.50 server was developed in SPbPU. The Z39.50 environment and the basic consortia infrastructure were constructed over five years (Baranov *et al.*, 2000). In the 2000s, the Russian LMSs: RUSLAN, IRBIS, etc., which support MARC-format, Z39.50 protocol and copy cataloguing, were developed. Soon, 12 regional library consortia provided access to their electronic catalogues to members via federated search or by copying the records to the union consortia catalogue. That infrastructure was really the remarkable event within the landscape of Russian libraries. For the first time, libraries felt the power of co-operation in a networked environment regardless of the LMS used and the location of the library. However, not all libraries accepted these new trends and demands; many still considered the card catalogue best, thus ignoring the quality of MARC-record and the compatibility of integrated library systems. These libraries were unable to participate in the new Internet environment.

Special training centers were created in six cities: Moscow, St. Petersburg, Novosibirsk, Omsk, Tomsk and Yekaterinburg. There librarians studied library interrelations and the new generation services within the networked environment including: standards and protocols, formatting RUSMARC and common linguistics, copy cataloguing and union catalogues. It was the time of extreme enthusiasm and great expectations for library networking cooperation.

ARLICON was founded in 2002 by the SPbPU, the Russian Bookchamber and Non-profit Fund "Puskinskaya Biblioteka".

All regional library consortia participants became the first members of ARLICON and, from the beginning, the number of public and academic libraries was nearly equal. However, schools and other small libraries were unable to join, as the technical barriers (quality of LMS, reliable internet access, etc.) were hard for them to overcome. The ARLICON portal executed searching to all consortia catalogues. It became the first large-scale portal in Russia, covering library stocks from many regions, with different types of libraries. However, only the search and retrieve record functions were available on the main consortia portal. As library stock consists of printed and electronic resources, some of the records included the links to full texts and other media e-resources. Thus, an ARLICON member could retrieve the bibliographic record for copy cataloguing or gain access to the e-resource if available.

Plemnek (2005) noted that new capabilities and services soon appeared such as interlibrary loan (ILL), electronic document delivery (EDD), joint digital repositories, etc. All these services were based on a union catalogue. In the transition from isolated work to cooperative activities, the union catalogue became not just a repository of bibliographic records, but the cause of difficult compromises between cataloguers. The reason was the very wide variety of local cataloguing rules. Russian libraries did not have a common national set of subject headings and other authority files, mandatory for all and used in every library. As copy cataloguing was not used in libraries, each book required the creation of hundreds (if not thousands) of bibliographic records. Therefore, it was very difficult to identify the best cataloguing process. ARLICON commissioned a special study on linguistics for consortia catalogues to develop the common rules. Though, those attempts did not produce immediate results, they were extremely valuable for future networking library cooperation.

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The next key landmark of ARLICON development occurred in 2007. By that time, 50 million bibliographic records could be accessed via the ARLICON portal. It was realized that simply increasing the number of bibliographic records and partners would not produce a better quality service. Thus, the time had come to reorganize cooperation and to increase the range of services. The best consortia initiatives in new services became the focus for the libraries interested in provision of these new services.

New guidelines for ARLICON developments were agreed:

- ARLICON activities will be conducted jointly with all involved libraries. All libraries, not only ARLICON members, can participate in any of the services.

The service criteria were defined:

- All service members have equal rights and responsibilities. Their responsibilities include participation in resource development or/and consortia service provision. Their rights guarantee that consortia resource or service usage will be free or on privileged conditions.
- ARLICON receives an exclusive interest for the whole service resource and, consequently, the right to provide access to the service for external users (usually libraries not private users). Each member gives ARLICON a non-exclusive interest to that part of the content of the joint resource created by their library.
- The service participants elect the manager and the board, who solve the strategic and tactical issues of the project.
- ARLICON becomes the clearing house for service accounting and manages the everyday activities of the service, including the provision of equipment and storage for service resources, software and communications for project workflows.

Three projects were agreed in 2007:

1 A bibliographic database of articles from Russian journals (MARS).
2 Electronic document delivery.
3 A distributed electronic library (EPOS).

The first two, MARS and EDD are described below.

After 2007, the new scheme of library resource sharing was accepted:

- any library can participate in any service activity;
- the library must reorganize its workflows according to the service profile without any financial support from ARLICON;
- ARLICON maintains the service provision information system, organizes key operations within the service workflow (for instance, quality control), management and accounting of the service activities.

The next seven years confirmed the effectiveness and timeliness of the changes. More and more libraries became involved in ARLICON activities either as partnership members, or as project service participants (Plemnek, 2009). Since 2007, ARLICON has received no financial support from ministries or other funds. The infrastructure and services work reliably and have become an important part of the national library information environment.

Project MARS – the bibliographic database of Russian journals indexed to article level

The birth of this project was initiated by libraries conscious that duplication of cataloguing and processing journals was wasteful. Cooperation was simple – the journals being processed were distributed between libraries, which then shared the bibliographic records created between the involved parties. The choice of journals for which all articles would be indexed consisted of those most frequently used by involved libraries.

The experience with the quality of union consortia catalogues (that were often poor because of the different linguistics used, the limitations of LMSs, etc.) taught that the rules for the commonly created bibliographic records should be uniform and that additional quality control was essential. Starting from just a few small public libraries, the project now links 230 academic and public libraries. Starting from 10 fields of bibliographic record, the rules now prescribe 39 mandatory fields, usage of common subject headings, classification indices, geographic rubrics, authority files of authors (university professors and researchers are indicated, and these data are used for bibliometrics in academic libraries). An article abstract is also one of the mandatory fields.

In March 2015, the size of the MARS database exceeded two. Five million records and 500-1,000 are added daily. The database covers about 2,100 titles of the most popular (according to libraries subscriptions) Russian journals. A common workflow links 800 specialists from participating libraries. At the beginning of 2015, participation by library type was:

- *University libraries*: 128 (55. 5 per cent).
- *Public libraries*: 102 (44 per cent).
- *Other*: 1 (0. 5 per cent).
- *Total*: 231.
- A full list of MARS participants is available at the project page[6].

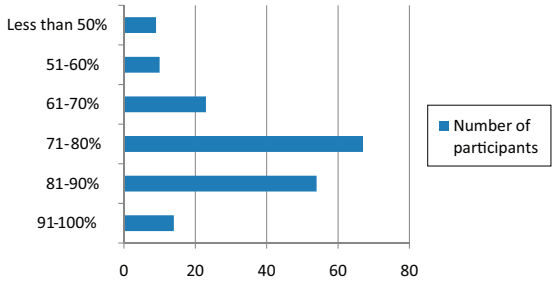
The workflow of the MARS database consists of the following major steps:

- Cataloguers create records, following the common instructions using any modern LMS. The records should be produced within 10 days after receipt of the journal by the library.
- Cataloguers send the records to a special filtering program, which checks the quality of records automatically. If any problem is found, special diagnostics appear on the project portal for the record creator. The records are corrected and resent to the filter.
- If no mistakes are found, the filtering program sends the record to an inspector, who provides additional quality control. If necessary the inspector contacts the cataloguer to find an appropriate solution.
- Approved records are sent to the MARS database and become available through the portal search.

The MARS service suggests two main uses in libraries:

1 Libraries copy the bibliographic records from the MARS database to their local databases for their users. They can copy via Z39.50, from the portal interface or receive records via e-mail. Figure 1 shows the extent of

Figure 1 Overlap between the MARS journal titles and library subscription titles



overlap between the MARS titles and the library subscription titles. These figures confirm the effectiveness of sharing efforts – the average library copies up to 80 per cent of the records instead of producing them.

2 Libraries use the ARLICON portal for navigation and searching in the Russian journals database. They do not need to copy the MARS bibliographic records to their own catalogues.

While Russian journals are still mainly in paper format, this database is a useful tool to optimize the library management of their journals collection. For example, if the library stops subscribing to rarely requested journals, it can still search and receive articles from them. The full MARS database is available only by subscription. However, libraries which help to create the MARS database have a free subscription. Searching the MARS database is available to all patrons of the subscribers, either from the ARLICON portal or from the library site if they have copied the MARS database. For instance, the library of SPbPU provides both options for its user: the interface of ARLICON portal search and the interface of discovery on the library portal, integrating the search in the library catalogue and the MARS database. In the near future, the search in MARS database within the overall discovery system will become the third option.

A demonstration database[7] with article records from January issues in 2008 is freely available via the ARLICON portal.

Currently, the records in MARS are in Cyrillic only. There are plans to transliterate the database and possibly translate annotations to English as well.

ARLICON also plans soon to add full-text articles to the database. This project was initiated together with the company that manages copyright issues with journal publishers in the Russian Federation. ARLICON will provide records for journals for which rights holders have signed agreements that will allow ARLICON the right to deliver the articles in electronic form via the project's portal. Rights holders receive royalty fees for the delivery of articles. If there is no requested article in the project's storage, the request will be sent to the library-holder via the EDD service described below. The workflow of this project should take into account all copyright legislation requirements in Russia which is currently changing.

The electronic document delivery service

This service logically follows from the MARS service; when the record is found, the user often wants the journal article. If it is not available online via the link within the record in the MARS database, the user can ask their library to request a copy.

The EDD[8] service refers to articles held and supplied electronically. Several databases are used within the service workflow. The MARS database is an effective searching facility for the content of journals published in the Russian Federation. The journals in the MARS database together with the journals of libraries subscription are included in the EDD union catalogue and the Union Catalogue of Serials enhanced by the list of holders. The EDD union catalogue is accessible only by librarians, processing requests on behalf of their users, via the special interface at the ARLICON portal.

The Union Catalogue of Serials[9] is freely available on the Internet for all (see an example record in Figure 2), but the interface is currently only in Russian which reduces the number of its potential users.

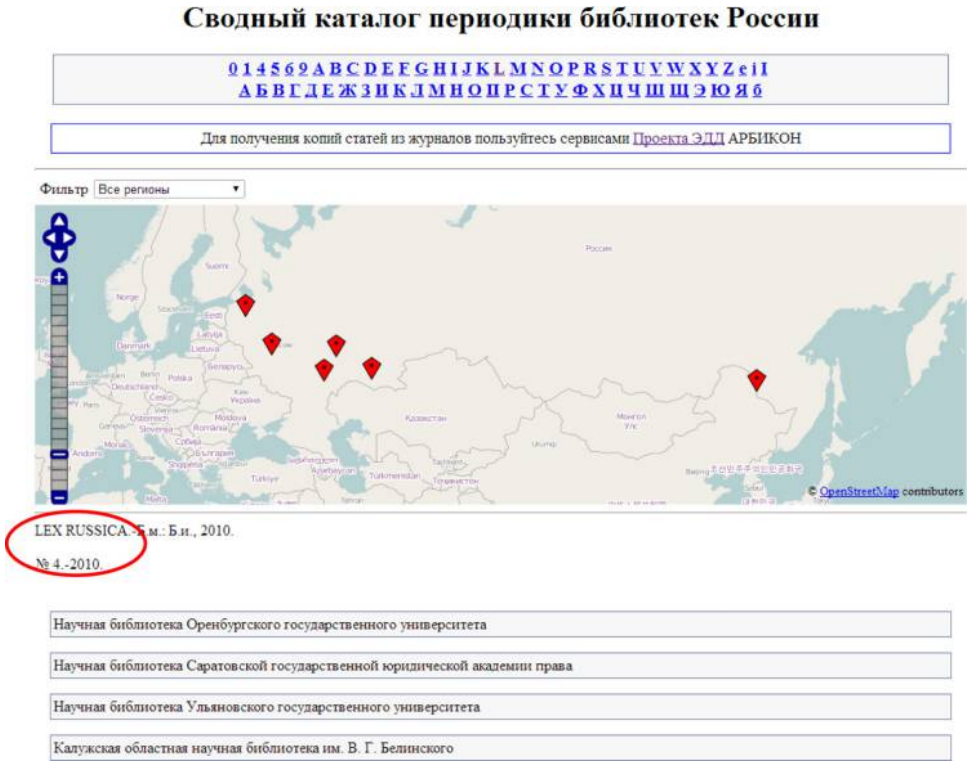
Thus the user must:

- Find the journal issue where the article is published by searching MARS or other databases or references.
- Find the library-holder via the Union Catalogue of Serials and go directly to that library or make a document delivery (DD) request to a library that participates in the EDD service. If user applies to EDD service, he then receives the printed copy of the requested article from the library where he placed the request.

The article from a printed journal can be requested and transferred in electronic form but after being printed for the user, it must be deleted from the EDD service server. As a rule, this service is provided to the user for a fee which covers only the expenses of the library for the transaction processing: scanning, printing, etc. It does not include the royalty for the authors or/and the copyright holders. According to Russian legislation (The Civil code of the Russian Federation, Part 4, Article 1,275 "Free use of works by libraries, archives and educational organizations"), a library has the right to lend from its stock to a user (including interlibrary exchange) a document or its copy, without asking permission from the author or rights holder and without paying royalty, if the service is provided by the library without profit. This rule works for all document circulation, both Russian and foreign. The more recent Federal Law of the Russian Federation dated 12 March 2014, N 35-FZ titled "About the modification of the first, second and fourth parts of the Civil code of the Russian Federation and separate acts of the Russian Federation" expands the rights of libraries since 1 October 2014. As the new rights, given to the libraries, are not yet fully implemented, more attention has been paid to the current state of the service.

Before 1 October 2014, the patron could receive only the printed copy of the document. The delivery of the electronic copy of the copyright-protected document from the library stock directly to patrons was prohibited. So the user had to come to the library to take the printed copy of the requested article. Some libraries sent the printed copies by post if so requested by the user.

Figure 2 The Union Catalogue of Serials of Russia: libraries-holders of LEX RUSSICA journal, 2010, No. 4



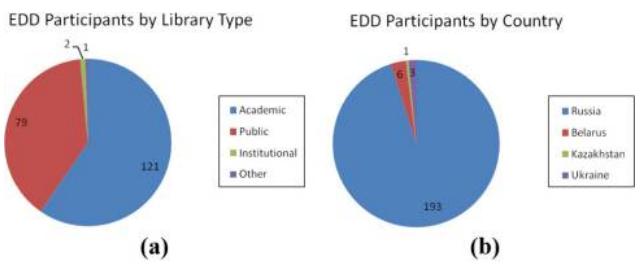
Over 200 libraries are both requesters and lenders and about 20 libraries are requesters only. In 2014, the number of journal titles (both Russian and foreign), available for delivery reached 7,900 and the number of issues were 623,967. Figure 3 gives quantitative measures of the service participants.

All libraries have access to requests status control, to statistics of their library (number of processed requests, details from the billing system, performance indicators) within the common EDD platform. The requests and success rate are illustrated by Figures 4 and 5.

The average time of processing EDD requests is now only 10 hours and 70 per cent are less than three hours 6.

The ARLICON service is not the only interlibrary resource sharing service in Russia, but it was the first and still is the only one which fully works within a common online system.

Figure 3 Participants in the EDD service



Notes: EDD participants by library type; EDD participants by country

Figure 4 Requests for the EDD service

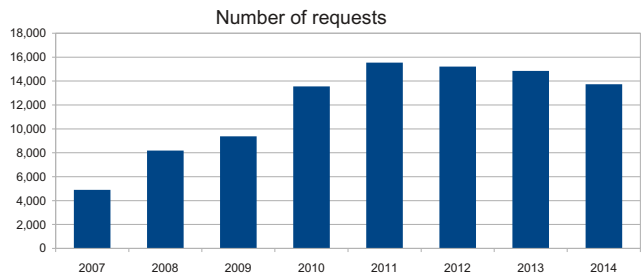
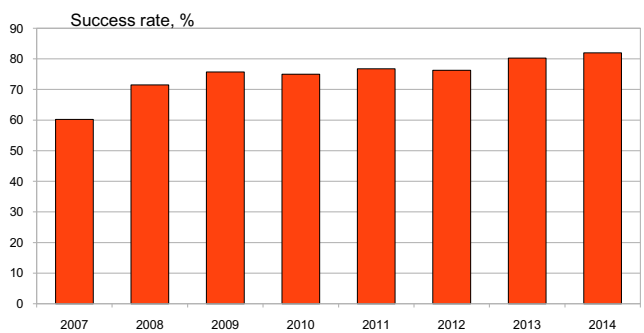


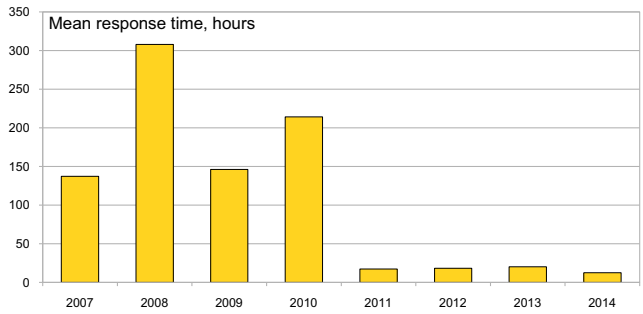
Figure 5 Success rate for the EDD service



ILL and EDD

In this section, EDD service refers to documents held and supplied electronically. ILL refers to documents (both journals and books) delivered by conventional means such as post. ILL/EDD refers to both services.

Figure 6 Mean response time for the EDD service



In recent years, libraries have united to provide an ILL/EDD service. Usually, this service is available via a modern consortia library portal and a union catalogue. For instance, a patron of the St. Petersburg public libraries[10] can search the union catalogue and send an online request for the document or its copy, indicating the most convenient library from which to pick up the printed copy. This service became possible because all 199 of the St Petersburg public libraries follow the same regulations for DD, have the same source for the services budget, and all patrons have a common library ticket to all libraries. The common DD service on the consortia portal was launched in 2009, statistics of requests are presented at Table I (Gruzdeva *et al.*, 2014).

The national system of ILL and DD has been headed by the Russian State Library since 2003 when it brought together the main national libraries. There are nine federal members of this system, including the Russian State Library, the National Library of Russia and others[11]. In addition the Russian State Library provides coordination of the system. There is no common online system which connects directly to all involved libraries. Requests to the system are sent via the Russian State Library site[12].

Many libraries have their own ILL/EDD systems, where libraries and patrons can send requests via e-mail or Web interface. The National Library of Russia is one of the most requested centers with about 36 million volumes. Gurbanova Olga, the head of the ILL/DD department (Gurbanova, 2013) gives statistics of ILL and EDD requests (Figures 7 and 8). Currently, about 90 per cent of requests are received electronically. About 40 per cent are satisfied by sending copies by post, both to libraries and private users. There are plans to enable the sending of ILL/EDD requests directly from the catalogue search interface.

We can illustrate the trend also by ILL statistics within the past 10 years from the library of SPbPU, which is in the top three of technical higher educational institutions in Russia. The library's traditional stock is over three million volumes. The library subscribes to many databases, both Russian and international. The set of international databases and journals

Table I Number of EDD and ILL requests via the consortia portal of St. Petersburg public libraries

Type of service	2010	2011	2012	2013
EDD	104	260	321	405
ILL	129	638	1,318	2,809

Figure 7 Number of ILL requests, received by the National Library of Russia

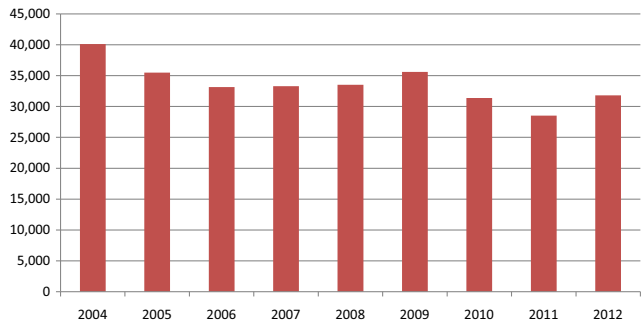
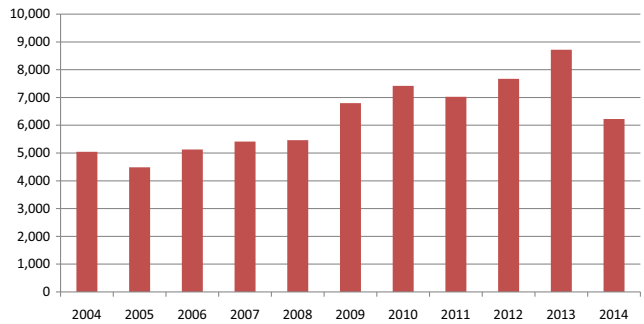


Figure 8 Number of EDD requests, received by the National Library of Russia, both from libraries and private users



included is similar to technical universities subscriptions worldwide. Subscriptions to printed journals (only Russian journals are subscribed in paper) were reduced in 2013 from 870 to 550 after identifying those journals which had not been requested within the past five years or requested only a few times. As the library participates in MARS and EDD and ARLICON, and all deleted titles are available in their databases, the articles can still be found by patrons and copies of articles can be received within a few hours.

The statistics show that the library lends more than it borrows (Figures 9 and 10). The library prefers to send ILL requests from its users to the National Library of Russia, as it is free of charge, and the service works reliably.

Figure 10 shows the EDD requests of SPbPU library. They were processed within the EDD service of the RUSLANet

Figure 9 Number of ILL requests of the library of SPbPU

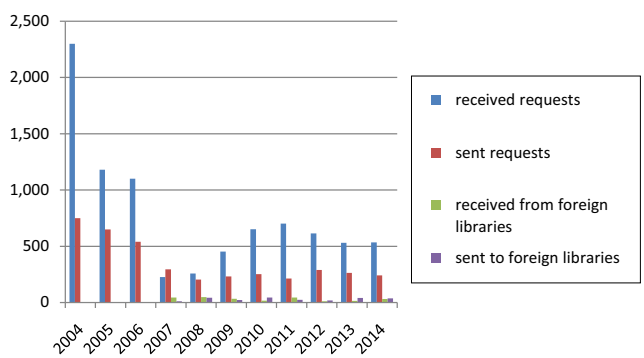
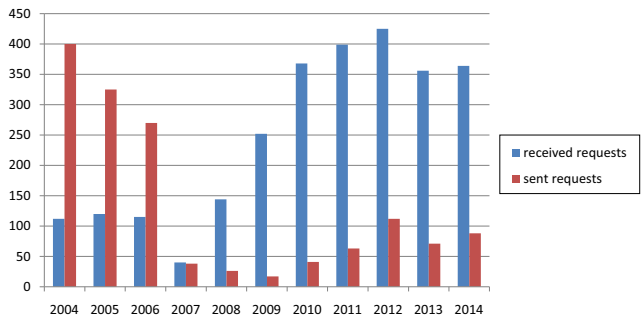


Figure 10 Number of EDD requests of SPbPU library



consortium before 2007 and within EDD service of ARLICON after 2007. RUSLANet is 1 of 14 ARLICON consortia, linking universities in the North-western region of Russia. The drop of requests in 2007 was caused by the transition to a new service platform.

SPbPU library also co-operates with foreign libraries (see Table II), but these requests are rare, because the prices are up to ten times higher (Subito, etc.), but there are some exceptions. The favorite foreign source for articles, not available in the EDD union catalogue is the National Repository of Finland. The copies of the articles come in electronic form; no fee is required for this service thanks to special conditions for Russian libraries.

It is hard to forecast the trends of future EDD and ILL statistics. Like everywhere, it depends on many factors. The reduction of the library budgets could cause the growth of requests. The status and quality of research and education also influence usage. The growth of journals accessible freely and directly by the user online might reduce library usage. But high prices for access could push the end user back to the library services and premises. Since 1 October 2014, the changes in Russian copyright legislation give public libraries the right to send a copy of a document directly to the end users in electronic form to satisfy their research and educational needs. In addition, the educational libraries are now able to send directly to students and teachers the electronic copy of a document for carrying out examinations, classroom lessons and for self training in quantities necessary for this purpose. Of course, the necessity for the end user to come to the library premises was an inconvenience. Year 2015 will show the influence of the new opportunities on the number of EDD requests.

It is probable, that in the near future, the discovery service, joining all types of resources and corresponding library services (including consortia ones), will dramatically improve the service and the use will go up. In general, the ILL/EDD service will be used until all the library stocks are digitized and freely available online which will not happen for a long time, if ever.

ARLICON services today and tomorrow

The ARLICON portal provides front-end services for all users and some library specialists.

In 2014, ARLICON started a new service to transfer Russian libraries to a modern system of identification while working with different database platforms. Currently, access to licensed databases in Russian libraries is usually limited to library premises. However, the changing expectations of users of the library services require access (possibly with authorization) from any computer connected to the Internet. A database of library users of the LMS or any other database with data about staff of a university or institution could be used as sources for authorization data. In other words, the time of transfer from IP-addresses limited access to user-password limited one has arrived.

In May 2014, ARLICON registered FEDUrus (FEDeration of Unified access to academic and research resources for RUSsia) for e-resource providers and database users. The project was officially announced in June 2014 at the annual international conference "Consortia Library Systems: Technologies and Innovations"[13].

Several international providers are already included in the list of FEDUrus service-providers (see Figure 11). ARLICON resources as well as e-resources from SPbPU and some other universities are also available. Four universities are now members of this federation and 12 are candidates for membership.

In accordance with world trends (Sadeh, 2013), the ARLICON portal will change old-fashioned OPAC-like search interfaces to discovery facilities. This improvement is included in the partnership development plan for 2015. Possibly, some ARLICON resources will be included in international discovery indices and become more visible in the world.

Conclusion

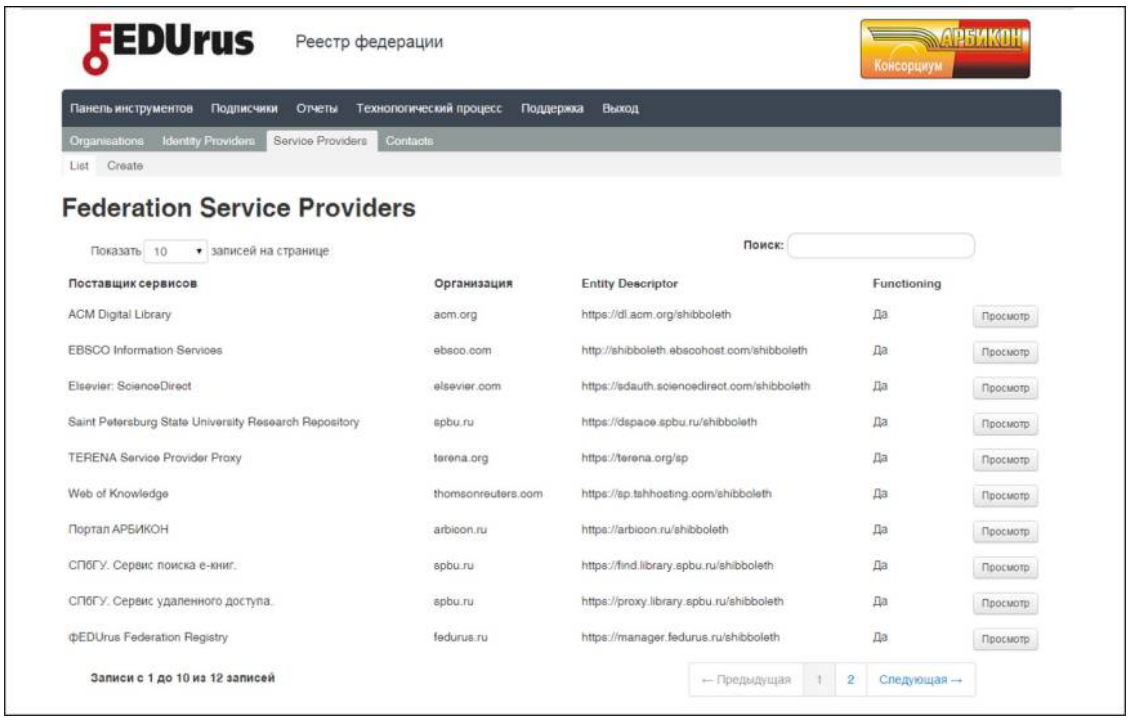
The library landscape of Russian Federation is rapidly changing, following world trends, but conditioned by the specific limits and properties of their country. Consortia technologies implemented by ARLICON and its partners provide visibility and accessibility for many diverse library sources from different regions of Russia. ARLICON has become the starting point for information search and retrieval.

The cost effectiveness of joint library services attracts more and more libraries, which have many different options for cooperation. The dynamic and collaborative essence of ARLICON projects and services ensures its sustainability both financially and operationally. Partnership is open to foreign libraries, especially for those with Slavic collections.

Table II Statistics of ILL/EDD requests between the library of St. Petersburg state polytechnic university and foreign libraries

Type of request	2007	2008	2009	2010	2011	2012	2013	2014
Requests to foreign libraries	11	42	23	44	24	18	40	38
Requests from foreign libraries	44	48	33	17	45	11	15	32

Figure 11 Register of the FEDUrus federation; the list of the service providers



Notes

1 ARLICON site, available at: http://arbicon.ru/

2 Russian library association site, available at: www.rba.ru/

3 National information library center LIBNET, available at: www.nilc.ru/

4 National electronic library, available at: www.rusneb.ru/

5 Description of RUSMARC format, available at: www.rusmarc.ru/

6 MARS site (project of ARLICON), available at: http://arbicon.ru/projects/MARS/participants.html

7 MARS database (a freely available demonstration subset with article records from January issues in 2008), available at: http://arbicon.ru/services/mars_analitic_demo.html

8 EDD (project of ARLICON) site, available at: http://arbicon.ru/projects/EDD/participants.html

9 Union Catalogue of Serials of Russian libraries, available at: http://ucpr.arbicon.ru/

10 The site of Consortium of public libraries of St. Petersburg, available at: http://ksob.spb.ru/

11 National ILL and DD service of Russia, available at: http://udo.rsl.ru/info/mba/

12 Structure of national ILL and DD system, available at: http://udo.rsl.ru/info/mba/struktura_centra

13 "Consortia Library Systems: Technologies and Innovations" conference of 2014, available at: http://arbicon.ru/conference/arbicon2014/?lang=en

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