

Russian Index of Science Citation: Overview and Review

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Abstract

At early 2016 the new index was launched on Web of Science platform — Russian Science Citation Index (RSCI). The database is free for all Web of Science subscribers except those from the former Soviet Union countries. This database includes publications from 652 best Russian journals and is based on the data from Russian national citation index — Russian Index of Science Citation (RISC). RISC was launched in 2005 but there is very limited information about it available in English-language scholarly literature by now. The aim of this paper is to describe the history, actual structure and user possibilities of RISC. We focus on the novel features of RISC which are crucial to bibliometrics and unavailable in international citation indices.

Introduction. History and main objectives of RISC

RISC was launched in 2005 as a government-funded project primarily aimed at creating a comprehensive bibliographic/citation database of Russian scholarly publishing for evaluation purposes based on Scientific Electronic Library (further eLIBRARY.RU) which started as a full-text database of scholarly literature for grant holders of Russian Basic Research Foundation. The main purpose of eLIBRARY.RU was to provide Russian scientists with papers from leading academic journals (Eremenko, 2003).

The evaluation of research implies the bibliometric analysis of research output of scientists, organizations, etc. At the same time only less than 10% of publications of Russian scientists are included into international citation indexes, i.e. Web of Science and Scopus (Tretyakova, 2015). Almost all publications in social sciences and humanities are in Russian — and they are absent from international databases. The primary aim of the federal target scientific-technical program was to collect and index information from all available publications in Russian scholarly journals and their reference lists to make possible the further evaluation of journals' quality and research output of Russian scientists, universities and research organizations.

In general, motives for creating national citation indexes are explained by Pislyakov (2007). There are plenty of examples and stories of implementation of such databases for different countries. For example, in China even several national indexes were created (Jin & Wang, 1999; Su, Deng & Shen, 2014; Wu et al., 2004; Ye, 2014). There are also cases in India (Yadav & Yadav, 2014), Japan (Negishi, Sun & Shigi, 2004) etc. Other stories were not so successful, the Serbian case was presented at previous ISSI conferences (Šipka, 2005; Pajić, 2015).

Unlike Web of Science and Scopus there are no strict criteria for journals to be indexed in RISC. At the very beginning of the project it was decided to index any scholarly journal. Nevertheless, the principle of indexing can not be called purely declarative: eLIBRARY.RU refuse indexing the propaganda journals or magazines that were deemed to be just popular or commercial media designed for a wide non-scientific audience.

It is important to differ the journals at the eLIBRARY.RU platform from journals indexed in RISC. Journal catalogue of eLIBRARY.RU now includes 12975 Russian periodicals, only 4847 of them being indexed in RISC. RISC indexes also 541 foreign journals which are published mainly in former Soviet countries.

The research output can not be evaluated only by journal publications — the scientific activity is also reflected in different book publications, conference materials, dissertations, etc. In 2013 the book project was launched in RISC and now eLIBRARY.RU platform hosts non-periodical publications: monographs, reference books and dictionaries, textbooks and manuals, collections of articles, conference proceedings, theses and dissertation abstracts.

The problem of author identification is crucial for all citation databases and there are different ways to solve it. RISC involves authors to resolve this problem with the service Science Index for authors since 2011 and for organizations since 2012 (Arefiev, Eremenko & Glukhov, 2012).

In 2015, the collection of the best journals of all journals indexed in the RISC was created for launching on the Web of Science platform in a separate database Russian Science Citation Index by agreement with the company Thomson Reuters IP (now — Clarivate Analytics). It has greatly expanded the presence of Russian scientific journals in the international information space, especially for periodicals in the field of social and humanitarian, technical and medical sciences, which were underrepresented in the Web of Science and Scopus. At the same time the RISC core has been selected. It includes the best publications that may be used to evaluate the effectiveness of scientific research based only on the highest quality segment of the scientific works of Russian scientists.

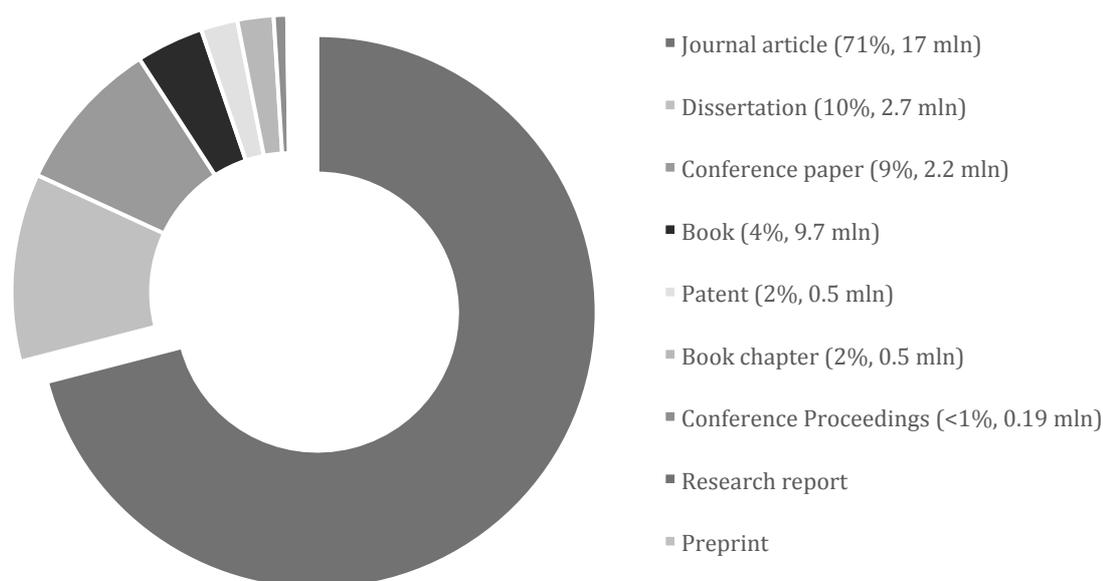


Figure 1. The distribution of publication types in RISC

Content and coverage. Information sources

There are 25 million documents at eLIBRARY.RU platform with almost 260 million references. The distribution of publication types is shown in Fig. 1.

eLIBRARY.RU contains almost 60,000 titles, 14,500 of them are Russian. Full texts are indexed for 4391 journals, this enables extracting the citation context (in the form of snippets), the unique feature of RISC unavailable in other citation databases. Each year the number of journals in eLIBRARY.RU is growing approximately 300 journals per year (Fig. 2).

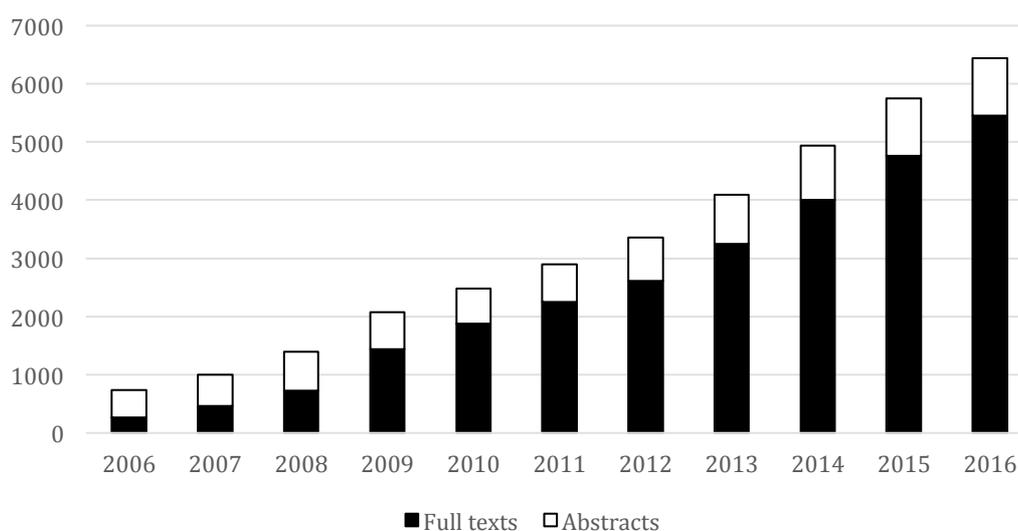


Figure 2. Journals with full texts and abstracts only

In 2010 an agreement was reached with the leading international publisher of scientific literature Elsevier to import into RISC the information about Russian authors and to attribute to them their works from the international citation database Scopus. This makes possible a comprehensive evaluation of publication output and citation analysis of Russian scientists and scientific organizations. Since then RISC takes into account not only papers in Russian journals indexed in the database, but also Russian papers in international journals.

Books come to eLIBRARY.RU from several sources. The main are publishers' or authors' agreements with eLIBRARY.RU. There are 1,750 contracts with 1,500 Russian and foreign publishers to deposit books to eLIBRARY.RU platform and more than 5,000 contracts with the authors to include their monographs.

The main source for patent information is Federal Institute for Industrial Property, the research reports are mainly imported from database of Russian Foundation for Basic Research. The whole number of documents in eLIBRARY.RU and their distribution by document types is shown in Fig. 3.

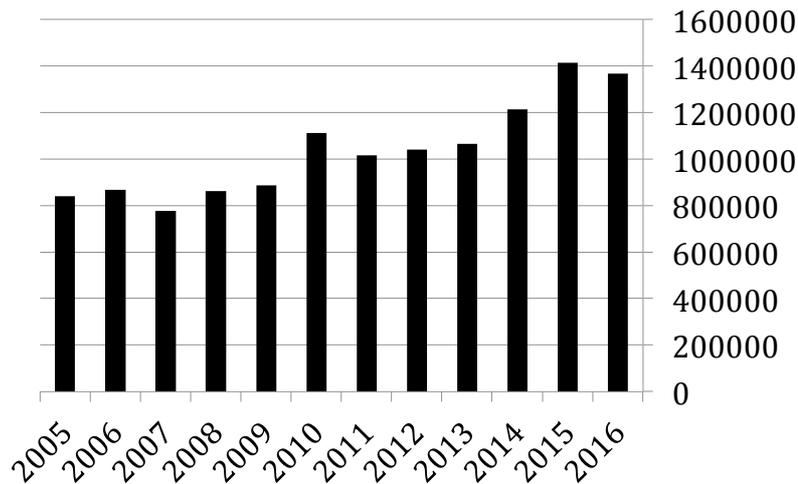


Figure 3. Annual number of documents in eLIBRARY.RU since RISC launching

Structure

Publication metadata

Every publication in RISC is attributed to specific publication type: research article, review, short communication, conference paper, letter, research report, book review, annotation, letter, editorial, biographical item; monograph, article collection, textbook, dictionary or reference book, brochure, guidelines; conference proceedings; dissertations; patents; grant report; preprint.

Publication metadata may include different identifiers — DOI, UDC, PMID, etc. As usual, the abstract and keywords in Russian and English are provided by publishers together with the references.

The preview of each publication is supplied with its bibliometrics and altmetrics indicators. The registered users may also see the links for citations in Google scholar. The links for the full text at the external sites are also available if publisher provides this information.

The bibliometric indicators include number of citations in RISC, Web of Science and Scopus, the citedness normalized by journal and subject area, other essential information. Altmetrics show the number of previews, downloads at eLIBRARY.RU and the number of article sets created by users to which this paper was added.

Lists of references have links to the publications included into database and citation snippets (if their full text is available at eLIBRARY.RU). It is possible thanks to the important difference of RISC from Web of Science and Scopus: RISC is not only fully integrated with eLIBRARY.RU platform, but is a part of it. Bibliographic and bibliometric information are combined with the service of online electronic library, providing access to the full texts which are stored in the system together with metadata. Today almost 4,500 journals use eLIBRARY.RU as a full-text

hosting platform. Citation snippets is a unique feature of RISC comparing with Web of Science, Scopus or Google Scholar.

Author profiles

At the moment of registration the scientist inputs his/her personal data, affiliations, name variants, research interests, list of journals, where he has publications, ResearcherID, Scopus, ORCID identifiers. This helps to identify the authors in papers. Each registered author receives a SPIN-code — Scientist Personal Identification Number. The number of registered authors now exceeds 430 thousand.

For each author, we may find all documents at eLIBRARY.RU where the scientist is identified as an author, editor or reviewer, the list of citing publications and analysis of author's publication output. The metrics are available: the number of papers and the citations received by them, h-index, bibliometric indicators for the last 5 years and distribution of publications by types, journals, coauthors, etc. Also there are the links to scientist profiles in external systems (Scopus, ResearcherID, ORCID, etc).

The publications extracted from reference lists in the full author publication list is the second unique feature of RISC in comparison with Web of Science and Scopus, where such publications can be found only by special option of reference search as secondary documents. This option is also realized in Google Scholar.

Organization profile

Organization profile includes the general official information about organization and its publication output.

Publication data include lists of documents with organizational affiliation, all publications of authors during the period of their work in organization and all publications of current staff regardless of affiliation mentioned. These options help to evaluate research output in organization and potential opportunities.

Analysis of publication activity of organization overviews the whole number of publications in RISC and citations received, number of authors affiliated with organization and other characteristics. Also, one can find there the value of h-index, g-index and i-index of organization.

Publications of the last 5 years are analyzed in detail, including the data on publications in different journal groups (Russian journals, foreign journals, RSCI journals, etc.), their citedness in RISC, number of publications that were cited at least once, distribution of publications by OECD fields of science.

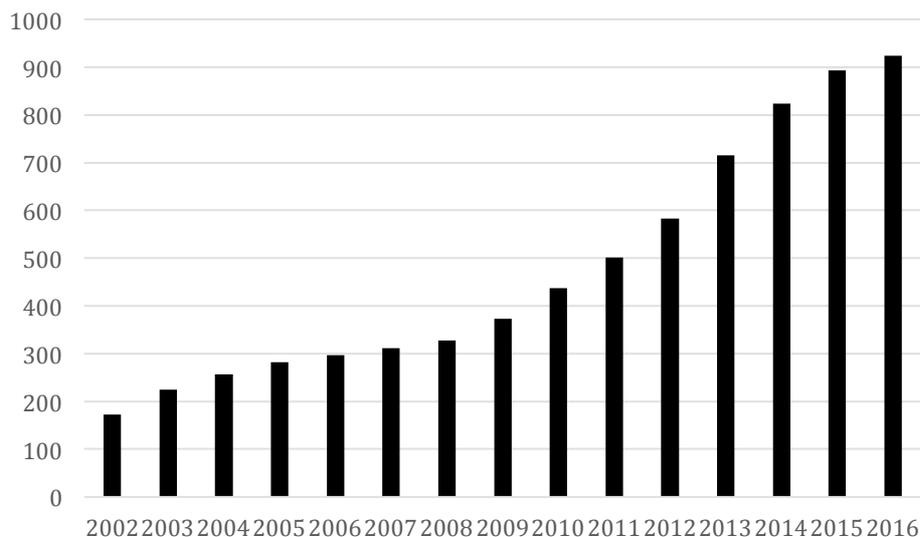


Figure 5. Registration of organizations at eLIBRARY.RU

Yearly bibliometric and altmetric indicators for the last 10 years are also available together with statistics for paper distribution by science disciplines, types of documents, organizations, authors, citations, number of coauthors.

Journal profile

Full journal information includes fields that make possible journal search by multiple parameters: journal title, publisher, ISSN, country, subject area, language, indexed/not in Web of Science or Scopus, availability of full texts and others.

Page with analysis of journal demonstrates a set of journal metrics. The essential indicators are the number of documents and citations received during the last 8 years and various statistical reports: distribution of indexed documents and references to them by subject areas, keywords, authors, organizations, type of citing publications, et al.

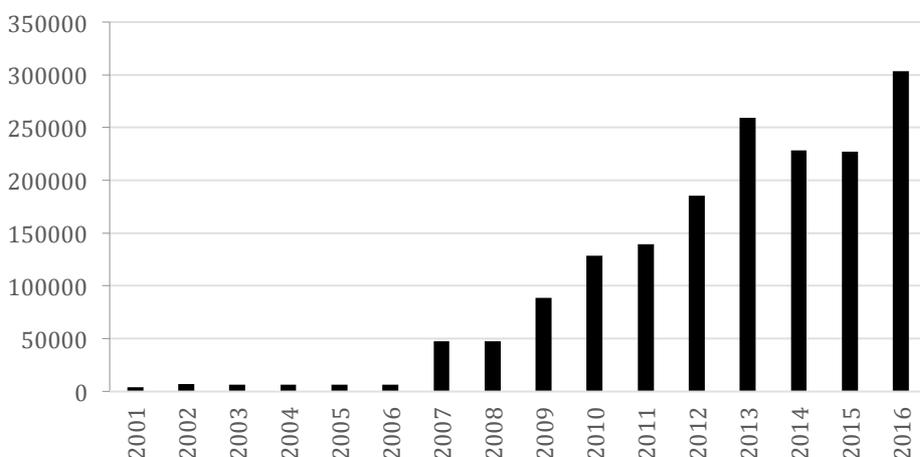


Figure 6. Annual registration of users at eLIBRARY.RU

Access

The access to RISC is free to all users after registration. RISC and eLIBRARY.RU are widely used not only in Russian Federation. The number of registered users and top-25 countries by registered users are demonstrated in Figures 6 and 7 respectively.

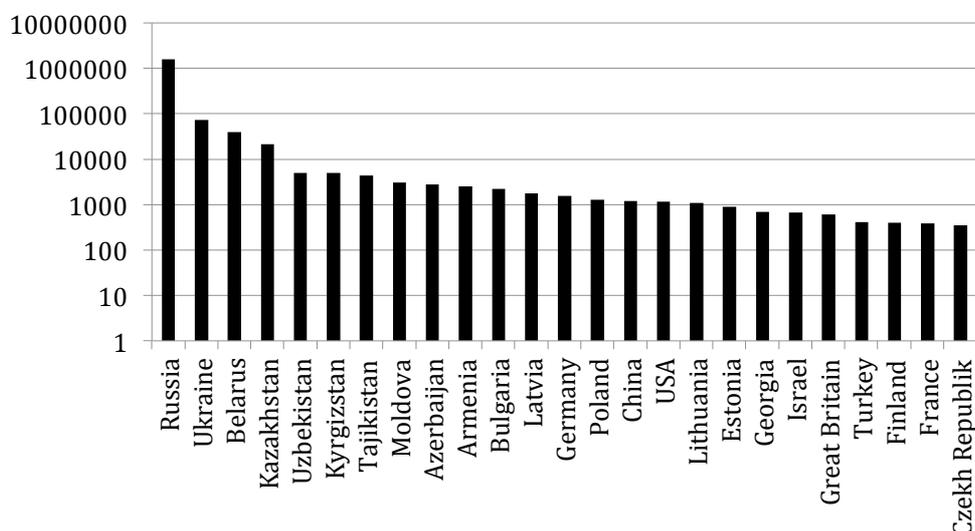


Figure 7. Top-25 countries by number of registered users

Users have free access to the full texts of open access journals and to the services like creation the sets of articles, journals and authors. Almost 50% of full-text journals in RISC are in open access. The access to the full text in the journals under subscription is available to the researchers and students from institutional network if the institution is subscribed to these journals, or for individual researchers by payment for a certain article. The registered users can make their own remarks to a document, discuss it with other users and even evaluate the publication. These remarks and evaluations are available to other users and can be seen in altmetric section in publication description.

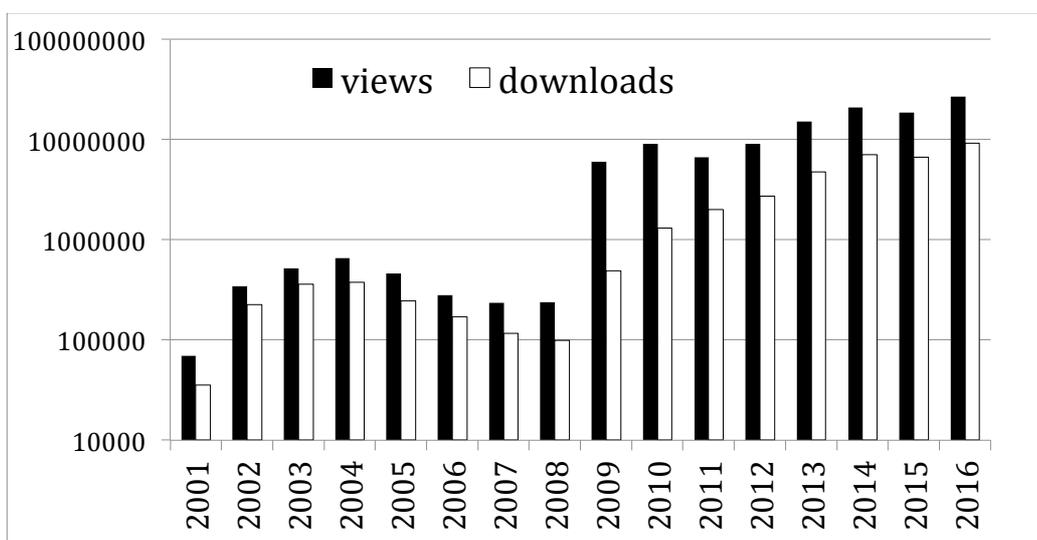


Figure 8. Usage of eLIBRARY.RU (views and full text downloads) by years

The usage of the database is shown in Figure 8. Remarkably, the ratio of views/downloads is rather stable over time.

Analytics services

RISC provides several standard forms of analytical reports mentioned above — the analysis of publication output of an author, organization and journal.

The registered user may create his own publication sets. The analysis of user-created publication sets presents a summary of the total number of publications, the number of papers in academic journals, the number of articles in journals included into the Web of Science or Scopus, the number of articles in journals included in the RISC core, the number of articles in journals included in the RSCI, the average impact factor of the journals in which the articles were published, the number of authors, the average number of publications per author, the total number of citations of publications, the average number of citations per article, the number of articles cited at least once, the number of self-citations (articles from the same set), h-index of the publication set.

Journal metrics

Like all citation databases, RISC allows to evaluate the quality of academic journals by citation metrics. There is a whole range of different indicators calculated for this purpose.

At first, there is a set of ‘impact factor-like’ indicators that show the average number of citations per document in a certain journal. Two-year and five-year impact factors with or without journal self-citations are calculated for each journal in RISC. Additionally, the two-year impact factor is calculated which includes citations from all document types from RISC, so the share of non-journal publications in the total number of citations to journal’s papers may be assessed.

It should also be noted that the high value of the impact factor does not guarantee the high quality of an academic journal. This index can be artificially inflated by self-citations or citations from the ‘friendly’ journals. Therefore, it should be considered in conjunction with other indicators calculated in the RISC. One must pay attention to the share of journal self-citations and its Herfindahl index for citing journals. High values of these parameters (greater than 40% for the self-citation index and more than 1,500 for the Herfindahl index) indicate that a significant proportion of cites to the journal come either from its own papers or from a very limited number of other periodicals.

In eLIBRARY.RU this index is also used for organizations mentioned as an affiliation of a citing author in journal articles. It helps to assess if the scientist is cited widely, not from its own institution.

The number of journal citations and self-citations, the average number of items in the reference list, citing and cited half-life is also calculated for RISC journals.

Science Index journal indicator

The special complex journal indicator is calculated in RISC — Science Index journal indicator.

Its methodology includes normalization by OECD subject categories, by average size of reference lists in the science field, by chronological distribution of citations and the share of them leading to papers included to eLIBRARY.RU database. It resembles the SNIP indicator (Moed, 2010), but differs by citation window (Science Index uses 5 years instead of 3 in SNIP). Additional detail is that Herfindahl-Hirschman index is added to the methodology which weights how diverse are citations the journal receives.

This methodology helps to make cross-disciplinary comparisons and rank journals more accurately.

Journal selection for RSCI

The aim of the joint project of the company Thomson Reuters (its scientific department which is now ‘Clarivate Analytics’) and eLIBRARY.RU is to select the best Russian academic journals and make a separate database Russian Science Citation Index (RSCI) which is available at the Web of Science platform.

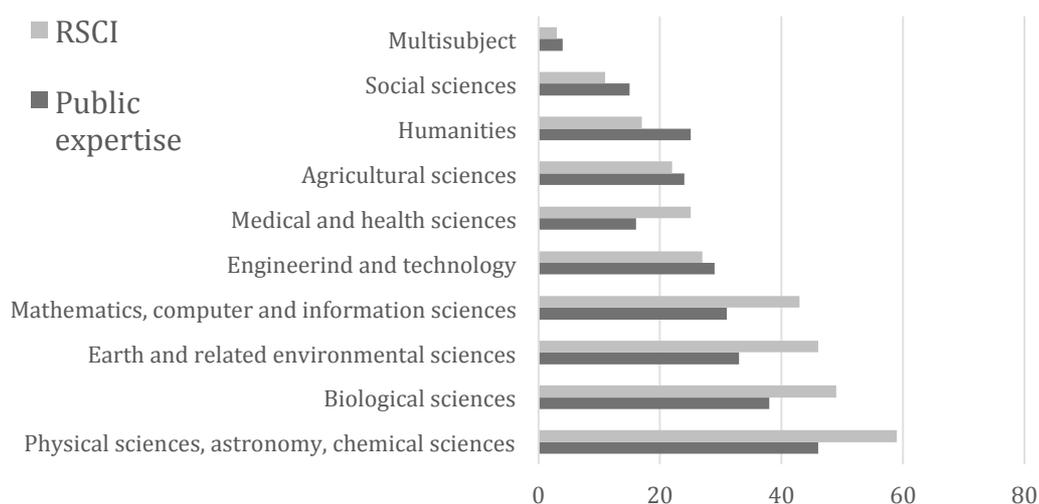


Figure 12. Journals recommended by experts and included in RSCI

Selection of the best journals from RISC for RSCI database at the Web of Science platform was made by bibliometric evaluation and peer expertise. The expert council was established. The council consists of the scientists and science administrators from leading institutions (Russian

Academy of Sciences and top Universities). For the expertise top-10% of scientists with high bibliometric indicators for every discipline were selected, it means that about 30,000 experts were invited. The final choice of journals was made by a working group when both the expertise and bibliometric analysis were combined. The results are shown in Fig. 12.

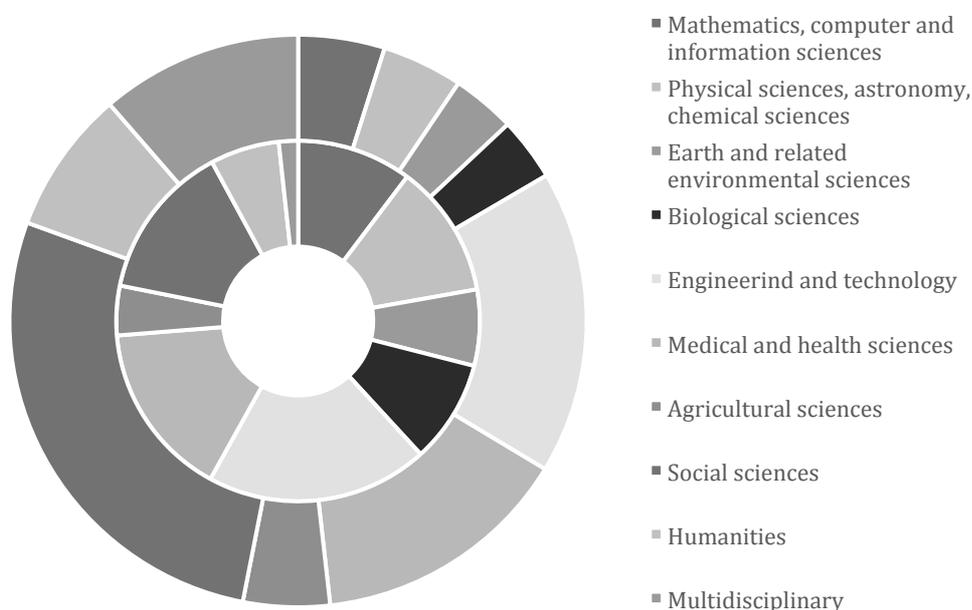


Figure 13. Distribution of journals by subject areas in RISC (outer circle) and RSCI (inner circle)

Finally, 652 journals were selected for RSCI. Distribution of RSCI journals by subject compared with RISC is shown in Figure 13.

Conclusion

Russian journals are aggregated now at the eLIBRARY.RU platform. The first and probably the most important point is that Russian journals have now become visible. All regional journals from distant regions now are available for researchers, at minimum at the level of titles/abstracts.

One of the main functions of science is communication (Merton, 1968). As sociologists of science think, if a brilliant research is not communicated to others, this is not a scientific achievement. So the creation of eLIBRARY.RU makes Russian science much better. We may even say that from classic sociological point of view the launch of such a database often turns *non-science* to *science* in Russia. Now a researcher from Moscow has a chance to communicate with a researcher from Vladivostok (more than 6,000 km distance), this is to say be alerted about his papers and be informed of his current research published in a local Vladivostok journal. This is very important for a science in a big country. And many of these papers can be read in full text at eLIBRARY.RU.

Moreover, the platform also helps to assess citedness of journals and their scientific level. One may make reliable evaluation of the quality of indexed journals, publication activity of authors and organizations. RISC includes much more Russian journals from social sciences and humanities than can be found in international citation databases, Web of Science and Scopus.

Today RISC is widely used for the analysis of Russian institutes and universities. For example, one case is given by Zibareva and Parmon (2012). Most probably, this trend will become more pronounced in the future.

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