# Trends in the Development of the Results of Intellectual Activity of Employees of the Volga Region Science and Education System

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Abstract: Intensive development of the country's economy is characterized by a bias of its spatial development in terms of the distribution of personnel. The concentration of personnel in Moscow and St. Petersburg puts on the agenda the issue of finding universal solutions to eliminate the spatial distortion of the country's development in terms of the distribution of personnel. To this end, the regions of the country are studied, in this case - the Volga Federal District (Volga region) through the analysis of electronic resources of education, science and support for sectors of the economy, the developers of which are the authors and organizations of the region. The article presents the results of a study of 3860 electronic resources of the Volga region, developed by 4594 authors and 322 organizations.

## 1 INTRODUCTION

In our previous publications, we touched on the topic of uneven development of the country in terms of training and distribution of specialists (Galkina, Grishan, 2021). Experts noted that such specialists are concentrated in Moscow and St. Petersburg. This circumstance forces us to carefully consider the results of intellectual activity in the regions and, first of all, universities when it comes to the development of electronic resources - the results of intellectual activity, which serve to train personnel in the regions in order to eliminate the uneven development of the country. Earlier, in this context, we considered the Siberian Federal District (Galkina, 2024). The processing and analysis of 3,860 electronic resources registered since 1998 in the United Fund of Electronic Resources "Science and Education" (OFERNiO) is carried out on the materials of a relational database. To achieve uniformity of data in the database, formalization, standardization and unification of information are used. This is achieved through the formation and execution of documents describing electronic resources using the RegOFERNiO electronic resource documentation automation program, registered in the FIPS.

## 2 THE PURPOSE OF THE STUDY

The aim of the study is to find ways that will help to develop the country's territory evenly, even if there is not enough staff and they are unevenly distributed. To do this, we will study and process data on electronic

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resources that have been created in the Volga Federal District. This analysis will help to determine the vector of solutions that will align the spatial development of the country in conditions of personnel shortage and uneven distribution of personnel.

The object of the study is educational organizations, mainly universities. The subject of the study is the results of intellectual activity of educational organizations in the form of electronic resources. The research methods are methods of statistics, semantic analysis and logic. Statistical processing of information about electronic resources is carried out automatically using the Collector_stat v.9.7 automated processing and statistics program registered in the FIPS.

## 3 THE RESULTS OF THE STUDY

As noted above, 3,860 electronic resources developed by 4,594 authors are being processed and analyzed, the first ten of which are shown in Figure 1:

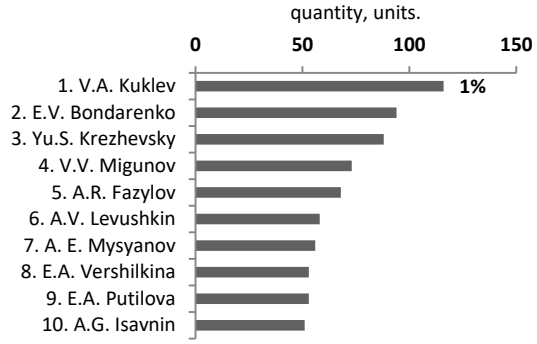


Figure 1: Distribution of electronic resources by authors.

As the diagram shows, the first place among the authors is occupied by Valery Alexandrovich Kuklev, PhD (Ulyanovsk State Technological University, USTU).

The geography of the development of electronic resources of the Volga region is represented by 52 cities and towns of the Volga Federal District.

Figure 2: Geography of electronic resources of the Volga region.

As the map demonstrates, the Volga region is distinguished by a dense, dense and numerous distribution of cities hosting organizations-developers and authors-developers of electronic resources.

The analysis of electronic resources by departmental affiliation is characterized by 23 ministries and departments, which indicates recognition of the effectiveness of developers of electronic resources: educational organizations and authors of the Volga region:

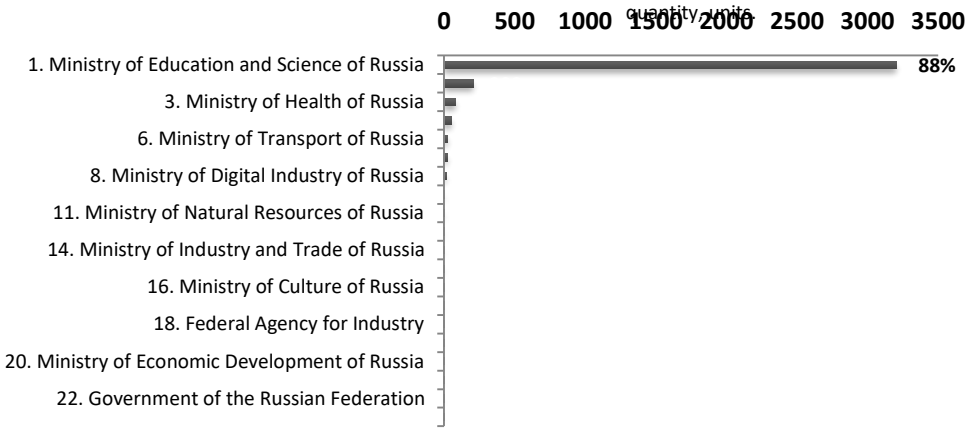


Figure 3: Distribution of electronic resources by departments and ministries.

Further analysis of electronic resources by the form of implementation reveals 153 formats of electronic resources, the first 10 of which are demonstrated below:

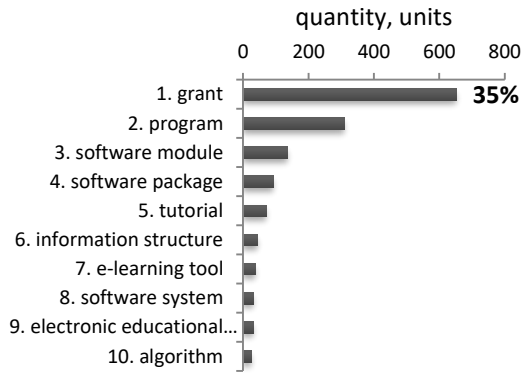


Figure 4: Distribution of electronic resources according to the form of implementation.

The study demonstrates numerous formats for the implementation of electronic resources – 153 out of seven hundred recorded by OFERNiO, of which the first place belongs to the "manual" form, as the most common means of teaching, containing educational and methodological materials.

The study of the distribution of electronic resources on a form-functional basis reveals the following distribution among pools:

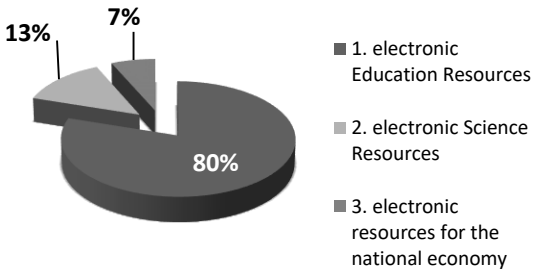


Figure 5: Distribution of electronic resources by form and functional features into pools.

We observe the predominant availability of electronic educational resources, which are mostly learning tools with the following distribution by variety:

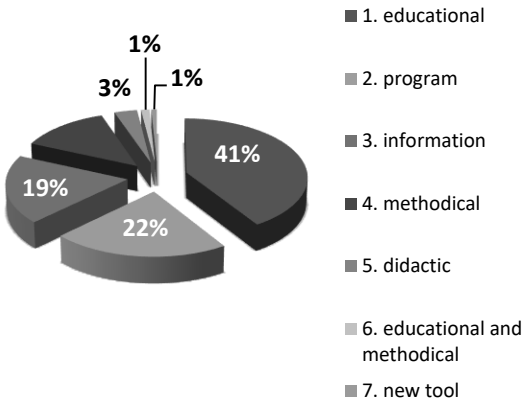


Figure 6: Distribution of electronic educational resources by type of learning tools.

The diagram implies the conclusion about the predominant availability of educational means - 41% of the total volume of electronic educational resources or - 51% of the total volume of analyzed electronic resources.

Learning tools in the form of electronic educational resources are designed to support 1,130 academic disciplines/subjects, of which the first 10 are shown in Figure 7:

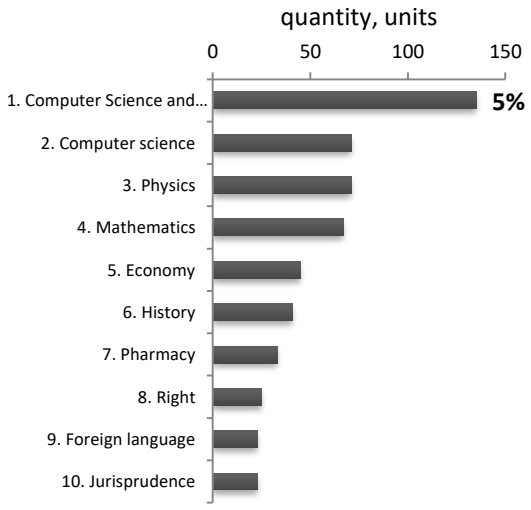


Figure 7: Distribution of electronic educational resources by academic subjects/disciplines.

The diagram shows that the first place belongs to the academic discipline "Computer Science and Information Technology", which confirms the professional opinion about the strong training of IT specialists in the Volga Federal District.

The analysis of learning tools by forms of learning is shown in figure 8:

The advantage belongs to electronic educational resources intended for full-time higher education, which is confirmed by diagrams 9-10

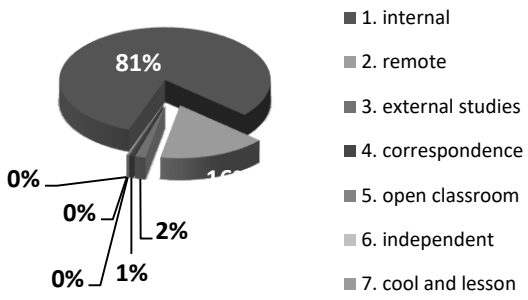


Figure 8: Distribution of electronic educational resources by forms of education.

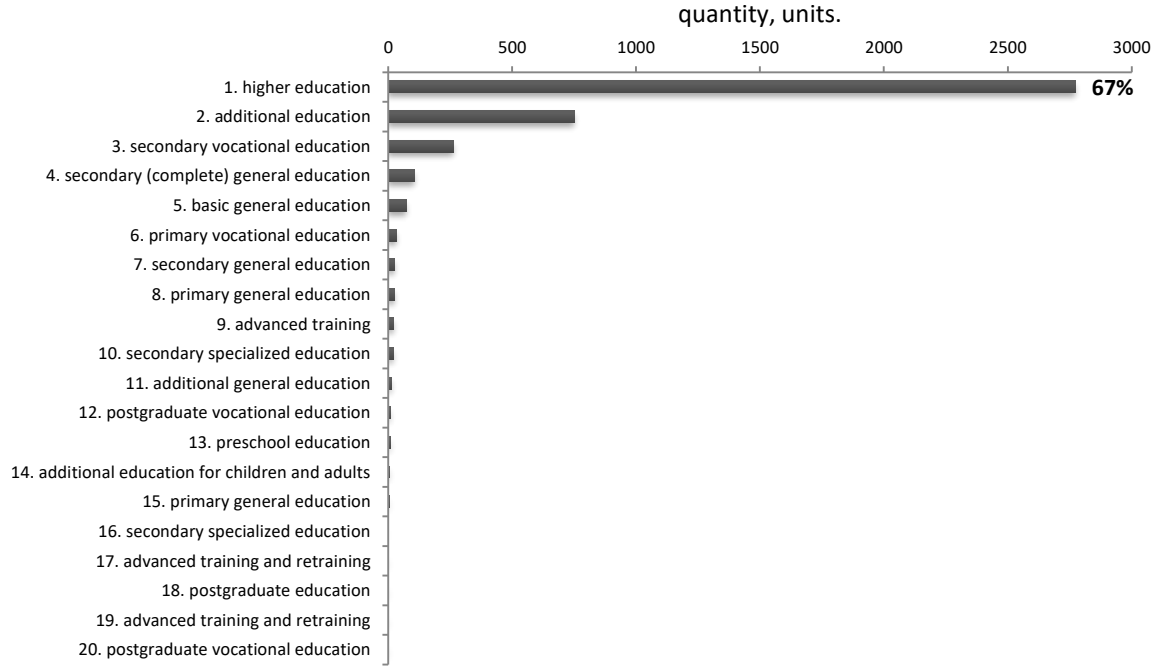


Figure 9: Distribution of electronic educational resources by level of education.

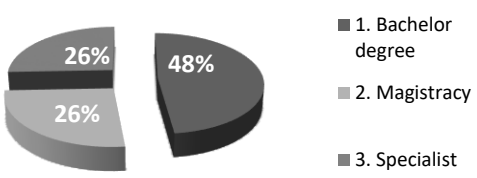


Figure 10: Distribution of electronic educational resources by higher education profiles.

The study demonstrates the predominant availability of electronic educational resources intended for higher education, the profile is bachelor's degree. Thus, the thesis is confirmed that the Volga region is a region with highly developed training of specialists, and, above all, IT specialists.

The analysis of electronic resources of science records and reveals their distribution in 24 scientific areas:

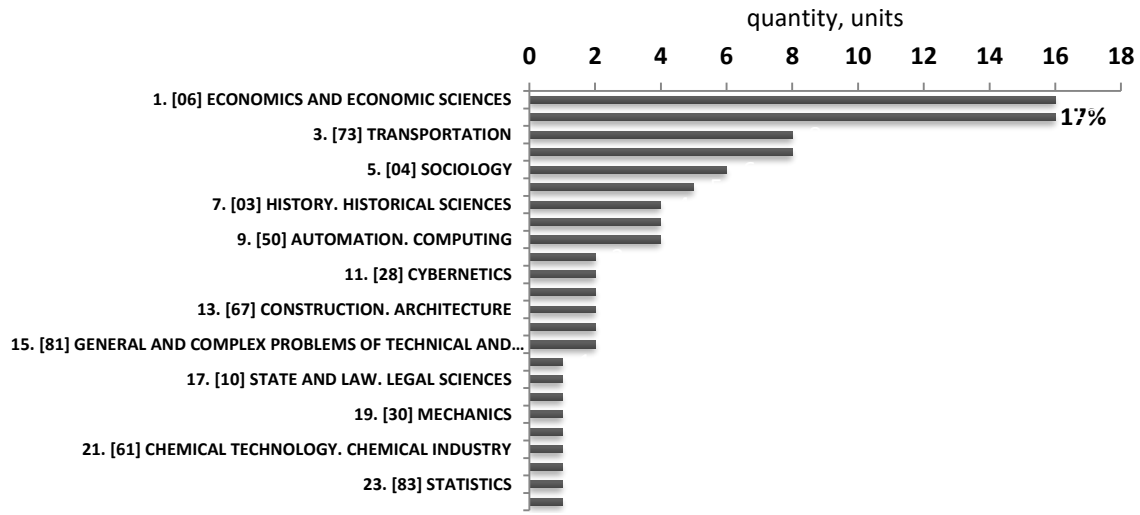


Figure 11: Distribution of electronic resources of science in scientific fields (GRNTI codes).

The first place among the studies supported by electronic science resources belongs to such sciences as economics and linguistics. The priority development of these sciences confirms the development trends of the region as a self-sufficient and multinational region with extensive economic ties with other regions of the country and countries of the world. The study of electronic resources for supporting sectors of the country's public economy reveals the following distribution into production and non–production spheres, where the ECONOMY sector comes first in the non-production sphere, and TRANSPORT in the production sphere.

The conclusion suggests that the region is looking for new solutions in managing the economy of this notational, self-sufficient district of the country, which is a link between the center of the country and Siberia, the Far East, which requires the development of the transport industry.

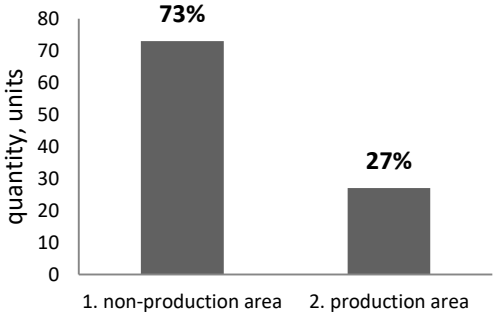


Figure 12: Distribution of electronic resources to support sectors of the country's economy into production and non-production sectors.

# 4 CONCLUSIONS

Summing up all the above, we state that the Volga region, having the main waterway of the country and a convenient geographical location between the center of the country and its distant regions, has a huge intellectual potential in the person of researchers, the teaching community, teachers, students and students. The effectiveness of developers of intellectual activity results in the form of electronic resources is supported by a plurality of departments and ministries acting as customers for the development of electronic resources for education, science, and support for real sectors of the country's economy. Based on all of the above, a solution is being formed to the problem of skewing the spatial development of the country in the form of easing the tax burden of the Volga region, improving the infrastructure of cities and towns in the region, creating additional jobs, which will stop the leakage of highly professional personnel trained by universities in the region from the region.


# ACKNOWLEDGEMENT

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