

UNIVERSITY INFORMATION SYSTEM RUSSIA: MULTIFUNCTIONAL RESOURCE FOR RESEARCH, EDUCATION AND PUBLIC ADMINISTRATION

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Abstract: Described in the paper is the Moscow State University-based Information System RUSSIA (uisrussia.msu.ru) – a multifunctional resource that have been started in 2000 as an electronic library for economic and social investigations and innovative education programs. NLP-technologies implemented under the project provide for content-based cross-collections search and query refinement. Research-assisting services are complimented. Accomplished under the project is a statistical information system that integrates main RF state agencies data collections and makes data analysis available at federal, regional and local levels. Work underway is on an ontology to integrate data and knowledge products. Currently the system is in growing demand for public administration.

1 INTRODUCTION

It is a world wide phenomenon that universities used to be among the most active to promote new information technologies and play a leading role at each stage of IT development. Since Internet history started universities-based resources have being been among most reliable – in legal status, contents, relevancy, update, functionality and innovations. Now that leading countries are composing a new information infrastructures to meet a digital society/electronic governance challenge the universities-based resources are of growing demand and become an important part of national information infrastructures (Berman F. and Brady H., 2005). Initially designed to serve for full scale economic and social investigations university resources have been the first to maintain state statistics holdings and accomplish value-added research-assisting services to process, arrange and analyze social, economic, demographic data as important base for relevant research (Yudina T., 2006).

Academic communities have worked out computer-based methods of data processing and investigation, implemented teaching courses to educate and train in data analysis.

By now the academic community resources provide for full scale economic and social investigations, system and comparative analysis. Universities experience in IT research, applications, education programs and approach to rationally arrange and maintain huge resources are of great value to society. In some sense universities have prepared the new step in IT development in the USA and European countries and pursue the role of promoters and advancers of knowledge-based technologies to enhance decision-making.

2 THE RUSSIAN CASE

In Russia IT development history is similar to that of leading countries. Universities were the first to obtain computers, adopt ICT and promote in the regions. Universities and think tanks implemented

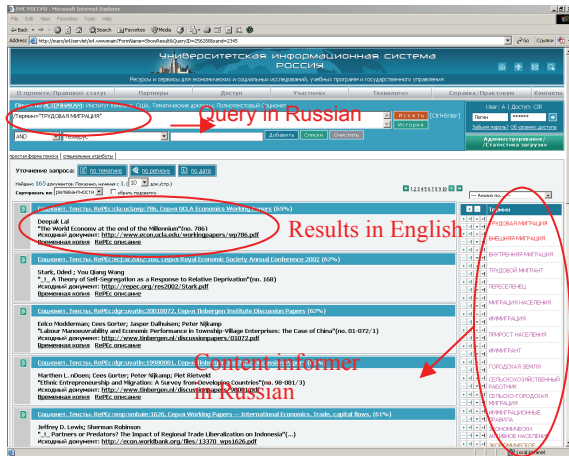


Figure 3: Using of bilingual Thesaurus for documents in English.

Thesaurus is bilingual. The tool assists in identifying main and subordinate topics in a document.

The NLP technology and bilingual Thesaurus provide for processing and content analysis in Russian of documents in English.

The technology provides for up to 100 Mb of electronic texts to be processed and integrated into the University Information System RUSSIA daily. ALPT results are utilized to ensure advanced search engine – in addition to traditional tools - content-based search and query refinement is available, exploiting Thesaurus with thesaurus hierarchy-based query refinement/ Also available for search are several systems of subject headings, including that of the UIS RUSSIA and Congressional Research Service, Library of Congress, USA, Legislative Indexing Vocabulary Top Terms; JEL (Journal of Economic Literature)-based classification system.

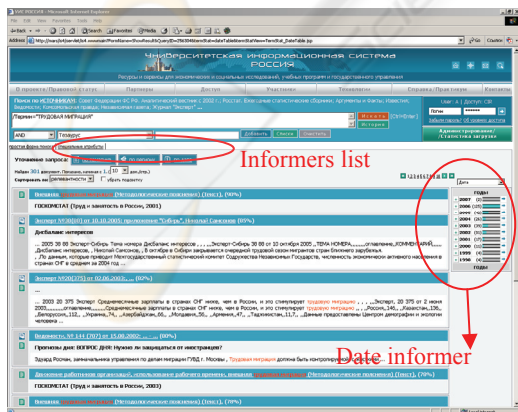


Figure 4: Informers customized to content, RF regions, date.

A query result may be refined exploiting the informers customized to documents content, RF regions/geography, dates.

4 VALUE-ADDED SERVICES FOR ASSISTING RESEARCH

The UIS RUSSIA provides for value-added services to assist research. The most developed are the services for state statistics-based investigations. With the Russian state statistics agency publishing data in aggregated tables and mostly in .doc format the following UIS RUSSIA services are most important:

- State statistics converted into relational data base format (power tables) available at federal, regional and local levels;
- MS Excel 97 format available for all statistical tables, including the tables presented in analytical reports and scientific journals;
- Links to the Methodological Notes and Glossary for statistics;
- System of Subject Headings to integrate data from different publications;
- Content-based search exploiting Thesaurus and subject domain ontology.

5 SUBJECT-ORIENTED MODULES

Subject-oriented modules are accomplished on domains, most demanded for research and university education – the modules on Russia include “Social and Economic Statistics”, “Budget System”, “Agriculture”; “Population and Leaving Standards”; “Regions, municipalities, households”(Bogomolova A. et al., 2006). The databases integrate statistics and analytical reports from Russian State Statistical Service (Rosstat), Ministry of Finance, Russian and international think tanks. Tables are available in HTML and MS Excel format. Implemented in 2006 is relational database format for socio-economic and budget data available at federal, regional and local levels. Each indicator may be monitored with 10 years coverage and analyzed exploiting applied math methods and developed models. System and comparative investigations are available. The table below presents the data on budget funding for birthing centers in 2003 (published by Ministry of Finance), population and infant mortality in 2 regions of RF (data is published by Russian State

Statistics Service).

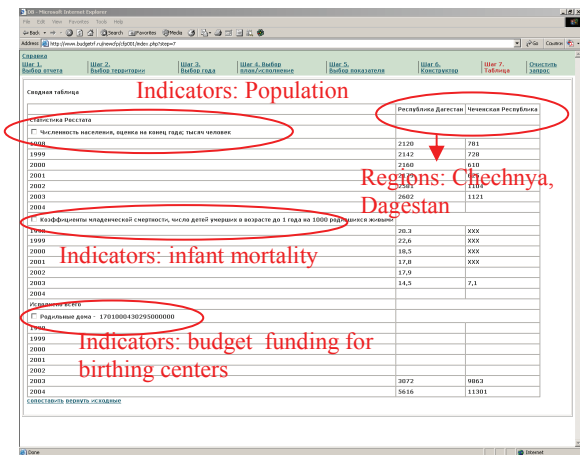


Figure 5: An example of comparative analysis of several Russian regions.

Maps and TeeChart are available for data presentation and analysis.

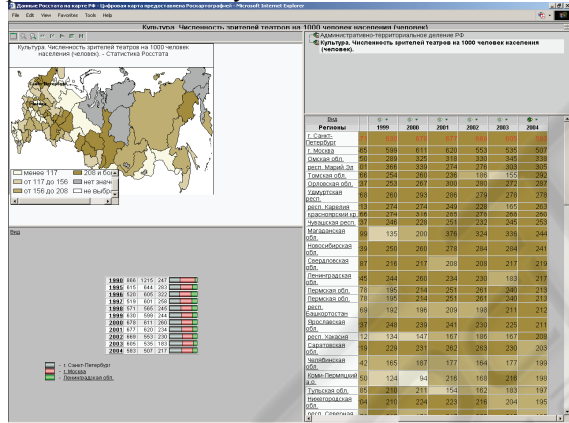


Figure 6: Presentation on the map of number of the theater visitors in Russian regions.

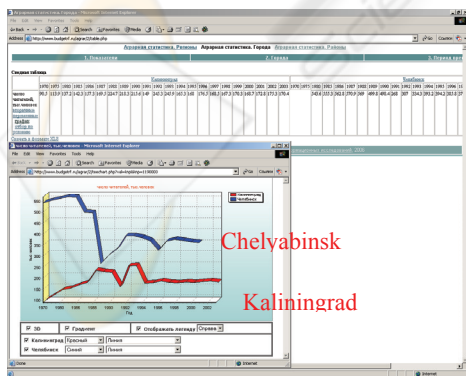


Figure 7: TeeChart presentation of number of the library visitors in Russian cities.

Data from other state agencies will be added in 2007.

The database is widely used for investigations and innovated education programs at Moscow State University and other RF universities. In recent months interest to the database is growing among government agencies – it provides for system analyses in support for decision making at federal, regional, local level.

UIS RUSSIA recent accomplishment is database on RF households 2003 survey. There is no practice of regular households surveys at government level in Russia. First households-based survey - National Survey of Households Well-being and Participation in Social Programs - took place in 2003 and covered 45 thousand households in 46 Russian regions. It includes 227 variables aggregated into 13 parts. These survey results is the initial data holding downloaded into the database. While working on the database the UIS RUSSIA team took the most advanced accomplishments as an example – the ones implemented under the Harvard-MIT Data Center's Virtual Data Center and Social Data Archive. A user can choose variables. For each variable frequency distribution and basic statistics is presented. One can also save original database in SPSS format or customized data set in .csv format. This means that a user can choose either some variables or some meanings of variables. As a next stage we plan to realize cross tabulations and graphs. In 2007 other households level resources developed in Russia and in international research centers will be included. The most developed project is the Russian Longitudinal Monitoring Survey which covers thirteen nationally representative surveys beginning in 1992 and conducted by the Carolina Population Center at the University of North Carolina at Chapel Hill in collaboration with Russian Federal Statistics Agency and several Russian institutes.

Mostly developed in the UIS RUSSIA current version is content and services for investigations in economic and public administration. To meet other social sciences information needs several new databases have been accomplished. Available since 2005 is the Information system that maintains international organizations documents on human rights - a)full archive of European Court of Human Rights decisions and judgments, b)main Council of Europe, United Nations Organization, Commonwealth of Independent States documents and c)publications on the human rights protection produced by partners in Russia and other countries' specialists, ECHR Secretariat. The system provides for friendly interface and value-added user services,

including:

- flexible search instruments in Russian;
- profile in Russian to compliment each of European Court's documents;
- access to the European Court's/Council of Europe documents available in Russian;
- special module to monitor cases against Russia with links to national law at issue and publications on the topic;
- hyperlinks to case law (Court's precedents).

The ECHR archive is legally obtained from the European Court Secretariat, archive is updated 3 times a year, August 2006 version covers 45000+ documents in English and in French.

The project cooperates with other projects in the domain of human rights protection. All respected partners have agreed to provide the archives to integrate into the information system.

The product is designed and maintained as a multifunctional resource to serve university teaching, comparative research, and public informing and education.

Given how large the scope of texts to analyze while comparing national legislative acts with international law norms only modern approach and computer technologies may provide for full scale comparative investigations. To meet this challenge the project team has accomplished a procedure to hyperlink the documents that accompany a certain case against Russia – European Convention on Human Rights articles, protocols to the Convention, other Council of Europe documents, RF national law at issue, Strasbourg case law (European Court's precedents).

A specialist has all package of texts at hand and may navigate across the stuff. This approach saves up time and provides for more effective work.

In 2006 work has started on a training module and a university teaching course. Specialists admit that human rights is among the most poorly developed sphere of public law in Russia. Still, most university programs are mainly composed in traditional manner and do not educate students in human rights protection legislation and practice. Students are not trained in comparative analyses and lack knowledge and skills needed to compare and harmonize RF laws with international norms. Working on this new resource the UIS RUSSIA team hopes to assist in new generation of layers education and training.

Contents, technology and value-added user services make the UIS RUSSIA a valuable resource for full-scale interdisciplinary and socially relevant investigations and innovative educational courses at

universities and higher education institutions. The system is free for researchers and educators, registration is needed. 400+ universities, higher education institutions, colleges, academic institutes, think tanks and 4000+ individuals are subscribed and work with the system. The system is also accessible via public libraries and assists in citizens education.

RF state agencies of federal, regional and local levels are becoming active in exploiting the UIS RUSSIA services. Workshops and training are regularly arranged to assist in government agencies staff education in data analysis in order to stimulate e-government technologies and principles in Russia.

The UIS RUSSIA team future plans include further development of all the resources, especially to accomplish a new version of statistical information system that integrates all RF state agencies data collections and provides for data analysis at federal, regional and local levels. Work underway is on an ontology to classify the indicators and integrate data and knowledge products This information system will operate as a multifunctional one and serve university teaching and training, research, citizens education and public administration.

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