The Past and Present of Digital Humanities: A View from Russia
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This essay looks at the latest trends in the information support of humanities research. One such trend is the emergence of a new multidisciplinary area of research that has come to be known as *Digital Humanities*. It is a very new up-and-coming area that is still going through its formation stages with the term still often being used as an umbrella for any humanities research that uses computer and information technologies, new media and methods with both *Humanities* and *Digital* understood in their broadest sense.

In Russia and the Commonwealth of Independent States (CIS)[1] Digital Humanities (just like *Digital History*) has not yet caught on to the same extent as in the west (we will talk about reasons for that later on) even though the Russian History and Computing Association has already been discussing applications of digital technologies in humanities studies[2] for quite some time. Since the Russian association is comprised primarily of historians, in this essay we look not just at humanities in general but also at history, the way it is linked with other disciplines such as Information Science, Arts and Humanities as well as social sciences. Because the field of Digital History has been known under different names at different times and in different languages I would like to point out that in Russia and the CIS it is mostly known as Historical Information Science, while Digital History is viewed as the part of Historical Information Science that deals with the application of modern digital technologies to create historical resources, digital copies of materials stored in museums, archives and libraries.[3]

Across numerous publications the history of what today is known as Digital Humanities can be traced back to the early 1960s (or even 1940s).[4] In fact, Digital Humanities can be said to be a link in a progression that starts with Computers and the Humanities, goes on to Humanities Computing, then to Humanities' Information Science, and finally ends with Digital Humanities. This progression was set off in 1966 when the first issue of the Computers and Humanities journal was published and the Association for Computers and the Humanities was set up in 1973, followed by the Association of Literary and Linguistic Computing in 1978.

The situation has developed in a slightly different way in historical research. Here we went from History and Computing to Historical Computing, then to Historical Information Science, and finally to Digital History. However, this chain of events started only in 1984 when the Association for History and Computing was set up in the UK. Up until that point history had been bundled together with the other humanities. Why? Probably, because from the very start Digital Humanities have been closely linked with computational linguistics and thus they have been dominated by computational linguistics as well as literary and linguistic scholars with only limited attention being paid to other humanities and specifically to history. It is also possible that one of the reasons may have been the broad variety of historical disciplines. Some of them, such as economic and socio-economic history, historical demographics and others tend to gravitate towards social sciences while others, such as historical anthropology, history of arts, history of culture generally tend to be classed with the arts and humanities.

Naturally, historians had been using digital technologies and quan-

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[1]The outlook on Digital Humanities presented here stems to a large extent from the history of computer-aided historical research in the USSR and in Russia.

[2]Leonid Borodkin, New priorities of historical informatics: e-Science Technology, in: Leonid Borodkin / Irina Garskova (eds.), Circle of ideas: interdisciplinary approaches in historical information science, Moscow 2008; pp. 5–15 (in Russian); Leonid Borodkin / Irina Garskova, Historical information science: reboot?, in: Perm University Herald, series „History" 2/16 (2011), pp. 5–12 (in Russian); Irina Garskova, Information technology and information approach in historical research, in: Bulletin of Peoples' Friendship University of Russia, series „Russian History" 4 (2011), pp. 110–124 (in Russian).

[3]Leonid Borodkin, Digital History. Application of Digital Media in Preservation of Historical-Cultural Heritage?, in: Historical Informatics 1/1 (2012), pp. 14–21 (in Russian).

[4]For example: Willard McCarty, Humanities Computing, in: Encyclopedia of Library and Information Science, New York 2003; pp. 1224–1235.

titative methods before the mid-1980s and not just as part of Humanities and Computing. It should be remembered that the period between the 1960s and the early 1980s saw the emergence of Quantitative History, which represents a different approach to using computers in humanities research. This approach stems from the ideas of quantification and the use of mathematical models in historical research that were pioneered and then expanded upon primarily by the so-called quantitative historians in the US. Historians started turning to new methods of processing and analysing sources, and first of all mass media sources as they began employing the theories, methods and approaches found in social sciences, relying on systems analysis and mathematical modelling. It was this period that saw the emergence of such areas of research as 'new economic history, 'new social history, 'new political history' and others. These years also saw the formation of leading national schools of Quantitative History. Thus, from the very start Historical Computing has existed not just as part of Humanities Computing, but rather as part of Quantitative History.

When in the 1980s, following the digital revolution (the widespread availability of microcomputers), new concepts for computer-assisted historical research began to appear, followed by professional associations and scientific journals, and Historical Computing[5] emerged as a new multidisciplinary area of research focused on the development of methods, approaches and tools that paid close attention to the nature of the information found in historical sources. Closer attention to historical sources and specific problems of computer assisted historical research ushered in the so-called history oriented stage in the development of Digital Humanities in the 1980s and 1990s. In this period, researchers turned from methods to sources (and later on to re-

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[5]It should be noted that it has been suggested time and time again that the name of this multidisciplinary field should be changed, see, for example: Lawrence J. McCrank, Historical Information Science. An Emerging Discipline, in: Information Today, Medford NJ 2002; Manfred Thaller, Historical Information Science. Is There such a Thing? New Comments on an old Idea, in: Tito Orlandi (eds.), Seminario Discipline Umanistiche e Informatica. Il Problema dell' Integrazione, Roma 1993, pp. 51–86.

sources in the broadest sense of the word), which precipitated a sharp increase in the interest in the creation of databases based on materials found in historical sources. Eventually this resulted in the role of the 'analytical component' in computer assisted historical research being downplayed while the role of the 'resource component' became more prominent.

In this period, in the countries that already had their own schools of Quantitative History they continued to evolve within the framework of existing theoretical and methodological concepts, preserving their scientific and information infrastructure, represented, for example, by such professional journals as Historical Methods (since 1967) (Historical Methods Newsletter since 1978) or Historische Sozialforschung/Historical Social Research (since 1976).

Historical Computing is now developing outside Quantitative History while at the same time continuing to rely on the traditions of quantification and use of the explanation-based methodology of social sciences, especially in such areas of historical research as economic history, social history, and historical demographics that have close ties to social sciences. This duality led to a number of international discussions within IAHC in the 1990s about the relation between Historical Computing and Quantitative History.

The emphasis on the words computer and computing that was made in the English speaking countries from the very start was not a particularly good choice. Ever since computers began to be used as a research tool, computing has been viewed as a method of processing information using computers (digital equipment). The limitations of this term are obvious as it clearly downplays the information component of research, reducing everything to 'computing.' In many European languages the same multidisciplinary areas of research have been referred to using such terms as informatics and information. Thus it could be argued that such English terms as humanities information science and historical information science better correspond to the names these fields are known as in Russian, French, Dutch and many

other languages.

Consequently, it was only natural when in the early 2000s the word computing was phased out in favour of 'information science'. In addition to technological reasons, the names were changed as the information component in humanities research began to be regarded as being closely related to the information component in archiving and library management (we can clearly see the link between such terms as humanities/historical information science, library science and archival science).

But why is it that the term Humanities Information Science so quickly gave way to Digital Humanities? Part of the reason, probably, is that in the west funds are increasingly being allocated primarily to major projects aimed at providing information support to humanities research and education whose participants include not only research and education institutions but also organisations concerned with the preservation of historical heritage (archives, museums, libraries).[6] Thus the term Digital Humanities emerged to refer to such projects. On the one hand, it is similar to the notion of digital libraries, a term that is often used not just about libraries but about any type of digital resources in the broadest sense. On the other hand, the main goal of Digital Humanities projects is to provide information support to science and education, something that has always been the domain of the traditional digital libraries.

The introduction of the word 'digital' coincided with a regrouping of sorts that took place in international professional associations where some disciplines were differentiated from one another while other areas of research merged. Thus the mid-2000s saw the IAHC begin a process of national schools getting more independent from each other, as a result of which IAHC stopped holding international conferences in 2005. Digital History is now a part of Digital Humanities just as it

was prior to 1984, back when the field was known as Computers and Humanities. The History and Computing professional journal that was published between 1989 and 2002 resumed publications after a five-year hiatus under the name 'International Journal of Humanities and Arts Computing'. The word history was dropped from its name, even as the word computing was kept. The journal primarily publishes materials that demonstrate the role of information and computer technologies in gaining new knowledge in humanities. It now covers a much broader range of topics from a wider selection of disciplines.[7]

At the same time in 2006 the regular European conference on social history (<https://esshc.socialhistory.org/>) opened a section titled History and Computing Network that continues to discuss Historical Computing issues but in the broader context of social history, thereby carrying on with the tradition of interaction with social sciences. The bulk of attention in the presentations made in this section is devoted to geographic information system (GIS) in historical research, technologies for creating and accessing collections of digitised sources, historical databases and other digital resources as well as historical research methods. And yet the geographical emphasis has clearly been dominant: In 2008 and 2010 the History and Computing Network was reorganised as History and Computing and GIS and then eventually it merged with the Geography network to form Spatial and Digital History.[8]

In the early 21st century an important feature of the development of information support for humanities research has been a trend towards a more multidisciplinary approach. It should be noted that interdis-

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[6]In a private conversation I asked a famous Digital Humanities specialist about which name he preferred: Humanities' Information Science or Digital Humanities. His reply was, I like Humanities Information Science but financial support goes to Digital Humanities.

[7]It is interesting to note that the journal of the Computers and the Humanities international association (published from 1966 until 2005) ditched its multidisciplinary nature in 2005 and changed the name to Language Resources and Evaluation. On the other hand when ALLC and ACH merged in 2005 it was the beginning of the ADHO alliance, which in 2006 held Digital Humanities conferences and has been publishing the Digital Humanities Quarterly e-zine (DHQ) since 2007.

[8]A month ago the mailing list H-AHC of the International Association „History and Computing" in H-NET network was renamed as H-Digital History, its goals and objectives are focused mainly on communication between users of information resources.

ciplinarity is now understood not only as the interaction between humanities and information science – there are common approaches in information support of various humanities disciplines. The new multidisciplinary approach also includes cooperation with experts in historical and cultural heritage studies because archives, libraries and museums hold vast amounts of text, visual and other types of historical content.

One manifestation of such an integration is the cooperation between various humanities disciplines at the level of methods and technologies in such areas as the creation and statistical analysis of data arrays and information systems; the creation of full-text databases and text research; the digital publication of sources; the development of digital resources devoted to specific topics, mathematical modelling; the spatial analysis using geographic information systems; and the virtual reconstruction of historical-cultural heritage sites.

Various national schools can develop different models of information support of historical research, however, regardless of the differences between them the increase in available professional digital resources is a global trend. Its most important feature from the point of view of future developments is that fairly large projects can give their users access not just to off-the-shelf resources but also to research methods and technologies, providing support, for example, to software solutions that can be used remotely to process user data or give users access to huge arrays of source data.[9] Information support of humanities research in the digital age cannot be limited to just providing an IT infrastructure: It has to offer methodological, technological, software, computational and educational components that users can interact with online.[10] This concept of a new information environ-

ment with distributed resources available to users via a network can be called *e-Humanities* the way that the use of such distributed networked resources and solutions in scientific research has come to be known as *e-Science*.

It should be noted that as the number of projects offering digitised materials for humanities researchers increases, there is still some disparity between the available infrastructure or the information component and the methodologies available in Digital Humanities, i.e. development of research methodologies is lagging behind the vast amounts of digitised materials that are being made available at an ever faster rate.[11]

So what is the main feature of Digital Humanities? Is it access to large amounts of information or a system of analytical tools allowing researchers to set and achieve new research goals? Is the methodological research in humanities keeping up with the vast amounts of digitised material? Aren't humanities limiting their analytical capabilities by choosing not to pay enough attention to the development of new methods and research tools? These questions posed by Manfred Thaller are most relevant and a light can be glimpsed at the end of the tunnel as more and more attention is being paid to methodology in Digital Humanities (whatever we might start calling this field tomorrow) and the new multidisciplinary approach is being adopted more and more, including through closer links with social sciences.

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[9] For example you can look at IPUMS (<https://international.ipums.org/international/> (13.10.2014)) or TAPOR (<http://www.tapor.ca/> (13.10.2014)).

[10] For an overview of the modern international experience in providing information support to historical research see: Patricia Alkhoven / Peter Doorn, New Research Perspectives for the Humanities, in: International Journal of Humanities and Arts Computing 1/1 (2007), pp. 35–47; Leonid Borodkin / Irina Garskova, Historical information science: reboot?, in: Perm University Herald, series „History" 2/16 (2011), pp. 5–12 (in

Russian).

[11] Thus at the conference 'The Cologne Dialogue on Digital Humanities' Manfred Thaller contended that, 'Looking at the reality of digital infrastructures for the Humanities … I can in no way recognize, that the abundance of digital material made available during the last decade has been augmented by a similar increase in the ambitiousness or power of the analytical tools applied to them. … I have observed with considerable unease, that current considerations of digital infrastructures for the Humanities … in some of the current discussions can be so devoid of analytical considerations, that it becomes almost indistinguishable from a Digital Library (and not even a very sophisticated one, at that)' (<http://www.cceh.uni-koeln.de/files/ThallerIntroWahn.pdf> (13.10.2014)).

Historical Information Science in Russia and the CIS

The first publications by Russian (then Soviet) historians about the use of computers in historical research saw the light in the early 1960s as part of Quantitative History studies. The new field of research was pioneered by scientists from a number of universities (Moscow State, Tartu University) and academic institutions (in Novosibirsk and Tallin). The development of Quantitative History was coordinated by a commission set up at the academy of sciences of the USSR (under the supervision of Ivan Kovalchenko). In the 1970s the Institute of History of the Academy of Sciences and the history department of Moscow State University opened laboratories specialising in the use of mathematical methods and computers in historical research. It was also around that time that the history department at Moscow State University introduced a new course in the fundamentals of mathematical statistics. Later on in the 1980s Moscow State started offering a course in information technology in historical research. The 1980s also saw research groups and laboratories being set up in many other universities and academic institutions including in Baku, Minsk, Dnepropetrovsk and other major urban centres. A community of scientists began to emerge that were specialising in this area. In 1979 the history department at Moscow State began organising a national seminar on Quantitative History, holding seminars for young scientists and conferences on mathematical methods in historical research.

As was noted by Konrad Jarausch, the Soviet national school of Quantitative History boasted high research standards and made extensive use of highly sophisticated mathematical methods (such as multidimensional classification, recognition of images) which was ensured by close cooperation between historians and mathematicians.[12] This sort of cooperation was necessary because of the shortage of computer equipment in the USSR and lack of access to such software applications as SPSS. Key research priorities at that time included the creation and management of machine-readable data archives; the analysis of statistical mass sources on historical demography, agrarian history, labour history, social cohesion history; family reconstruction (record linkage); the attribution of medieval texts; the reconstruction of the history of copies of old manuscripts; and the mathematical simulation of historical processes.[13] The theoretical achievements of the Soviet school of Quantitative History centred around Ivan Kovalchenko and also included the development of the information aspects of source research, concepts and methods for the analysis of mass sources.

The Russian Association for History and Computing (Assotsiatsiya 'Istoria I Komp'uter' – AIK)[14] was set up in 1992. Unlike many other European countries the new association that brought together researchers from the CIS was based around an informal community of quantitative historians that had emerged in the CIS over the previous 20 years. It was for this reason that features of the Russian experience in this area include close ties between Historical Computing and Quantitative History, continuity and cooperation in the development of these two multidisciplinary research areas, including at the level of personal contacts between researchers. In addition, as Russia does not have specialised publications like HSR, Russian quantitative historians have traditionally used AIK's publications for publishing their papers.

In just a few years AIK became the third-largest national branch of IAHC and the first in terms of the number of annual publications. In Russia and other CIS countries over a dozen research centres were set up that are now actively using mathematical methods and information technology for historical research as well as for teaching history students. AIK was further popularised through the international autumn schools 'History and Computing: European Model' organised by the history department of Moscow State University with active support of IAHC for graduate students and young researchers from Russia and

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[12] Konrad H. Jarausch, The International Dimension of Quantitative History. Some Introductory Reflections, in: Social Science History 8/2 (1984), pp. 123–132; Konrad H. Jarausch, (Inter)national Styles of Quantitative History, in: Historical Methods 18/1 (1985), pp. 13–19.

[13] Development of such programs involves the use of fairly sophisticated mathematics such as game theory, differential equations, Markov chains.

[14] <http://www.aik-sng.ru/> (13.10.2014).

the CIS in 1992-1996. Classes were taught by famous experts from west European universities. Over 200 young researchers got certificates of completion from the autumn schools.

Since its creation AIK has held 13 conferences (between 1993 and 1998 they were held on an annual basis, now they are held once every two years). An important event in AIK's international activities was the holding of the XI IAHC conference[15] in Moscow in August 1996. In addition, as part of IAHC AIK held the international seminars 'Statistics for Historians: Standard Packages and Specific Historical Software' (1994 in Barnaul) and 'Archives in Cyberspace' (1996, Moscow).

In the time that it has existed AIK has published 11 volumes of research papers and conference materials and 41 issues of the Information Bulletin. In 2012 AIK started publishing the Historical Informatics journal. In addition, AIK has been behind the publication of over 30 collections of articles, studies and textbooks in Moscow and in Russian provinces. Russian and Belorussian universities have been offering the Historical Information Science bachelor and PhD programmes since 1996.

Several dozen projects were completed with funding from both Russian and foreign research funds. The association ended the 20th century going from strength to strength in its efforts to introduce information technology as a tool of historical research and education.

Regional centers and schools have emerged in Russia and in CIS countries. For instance, in Novosibirsk, in the Institute of Archeology and Ethnography of the Siberian Department of the Russian Academy of Sciences the researchers successfully develop mathematical methods of data processing and data analysis and create resources on the history of Siberia.[16] Researchers from the Siberian Federal University in Krasnoyarsk are especially interested in creating three-dimensional re-

constructions of the historical monuments and other objects of cultural heritage, and in using information technologies in museums.[17]

Information technologies in education are being developed in the Institute of Distant Education, Tomsk State University, in particular within the framework of the 'Informatics for the Humanities' Master Program.[18] The technologies of E-learning are also very much present in the programs of the History Faculty of Belarusian State University at Minsk.[19]

A research school that emerged on the basis of the Mordovian University in Saransk[20] specializes in applying mathematical methods and information technologies to the historical demography and the economic history of Russia in the 18th-19th centuries.

In the Urals, databases and information systems on Soviet political history (the history of political repression) are being actively created. The Historical Informatics Laboratory of the Nizhny Tagil State Social-Pedagogical Academy took part in the making of an electronic data bank of the victims of political repression in USSR (within the scope of the Restored Names international project[21]), and, together with the International Historical-Enlightment, Human Rights and Humanitarian Society Memorial, develops electronic memorial books of ethnic Germans who were Soviet citizens and victims of political repression.[22]

The Ural State University in Ekaterinburg develops methods and technologies of space analysis based on Geographic Information Sys-

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[15]The first IAHC to be held in Eastern Europe and brought together about 150 participants from around 22 countries from Europe, America and Asia.

[16]See Web portal Archaeology and Ethnography of Northern Asia (<http://www.sati.archaeology.nsc.ru/sibirica/>).

[17]Mikhail V. Rumyantsev et. al., Virtual reconstruction of historical and cultural heritage in the town of Yeniseysk, in: Leonid I. Borodkin / Mikhail V. Rumyantsev / Ruslan A. Baryshev (eds.), The Virtual Reconstruction of the Objects of Historical and Cultural Heritage in the Format of the Scientific Research and Educational Process, Krasnoyarsk 2012, pp. 109–134 (in Russian).

[18]<http://ido.tsu.ru/en/education/edu2/Humane_problems_of _contemporaneity/Information_technologies_in_humane_researches.php> (13.10.2014).

[19]<http://www.hist.bsu.by/en/> (13.10.2014).

[20]<http://www.mrsu.ru/en/i_faculty/detail.php?ID=3490> (13.10.2014).

[21]<http://visz.nlr.ru/project/> (13.10.2014).

[22]<http://www.rusdeutsch.ru/?tagil=1> (13.10.2014).

Fig. 1: Electronic memorial books of ethnic Germans who were Soviet citizens and victims of political repression

tems (GIS)[23], the Kama Institute of Humanities and Engineering Technologies in Izhevsk works on mathematical modeling in History Studies.[24] Another Urals research school, linked with the Linguistics Department of the Izhevsk State Technical University, is known for its work in the field of electronic publishing of the ancient Russian manuscripts as full-text databases, with the help of the Slavonic Written Heritage information retrieval system developed in collaboration with the Federal archives and libraries.[25]

Researchers from the Petrozavodsk University develop methods

and algorithms of work with medieval documents and other historical sources on the base of XML technologies representation of the tenor of historical records in semantic publications.[26] A group of scholars from the University is working on the problems of automatic handwriting recognition and creation of search systems for working with images.[27]

The Historical and Political Information Science Laboratory of the Perm State University studies the history of the Russian parliamentary bodies in the 19th and the beginning of the 20th century[28], develops Internet resources dedicated to this subject[29], creates and analyses fulltext information systems on such mass historical sources as newspapers, stenographic records of the meetings of the State Duma, minutes of zemstva assemblies etc.[30]

Three most important research schools in the field of Historical Information Science exist in Moscow, at Tambov and at Altay Universities. Each of them is efficient in developing several sectors of the Historical Information Science, partly due to the collaboration of

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[23]See, for example: Ludmila N. Mazur / Svetlana I. Tsemenkova, GIS 'Settlements of Sverdlovsk region': problems and solutions, in: Information Bulletin of the Association 'Istoriya I Komp'uter' 35 (2008), pp. 11–12 (in Russian).

[24]Nicholas V. Mitukov, Simulation modeling in military history, URSS: Moscow 2011 (in Russian).

[25]<http://mns.udsu.ru/index_en.html> (13.10.2014).

[26]See, for example: Alex G. Varfolomeev / Alexander S. Ivanov, Principles of electronic publication of aggregate historical documents using paleographical, textological, and diplomatic analysis. <http://textualheritage.org/content/view/57/68/lang,ru/> (13.10.2014).

[27]See: Aleksandr A. Rogov, et. al., The Search Systems in Electronic Collection of Karelian Petroglyphs Images, in: Digital Libraries: Advanced Methods and Technologies, Digital Collections. The Tenth Anniversary of All-Russian Research Conference. Dubna, 7-11 October 2008. <http://rcdl2008.jinr.ru/pdf/246_251_paper29.pdf> (13.10.2014).

[28]Igor K. Kiryanov, Information System 'The State Duma Stenographic Reports, 1906–1917': Experience of Designing and Realization, in: Documentation and Analysis of the Historical and Cultural Heritage by Historical Information Science Methods. Proceedings of the Joint Seminar (held at Graz, April, 15–17, 2009), in: Series of the Institute of History (University of Graz) 18 (2009), pp. 135–145; Sergey I. Kornienko, Information System 'Russian Parliamentarians in the Beginning of the 20th Century' as a Basis for Prosopographical Research,Ibid., pp. 145–155.

[29]<http://helios.psu.ru/pls/parlament/first_page.html> (13.10.2014).

[30]Dinara A. Gagarina, Newspaper 'Perm provincial sheets' 1838–1844's. Problems of Source-Study Research and Historical and Cultural Heritage Preservation, in: Documentation and Analysis of the Historical and Cultural Heritage by Historical Information Science Methods, pp. 90–99; Nadezhda G. Povroznik, Information System 'Reports of Zemstvo's Assemblies' as Source for Investigation of Provincial Selfgovernment in Russia (the second half of the 19th – the beginning of the 20th centuries), Ibid., pp. 100–111.

these schools on the level of common research projects, publications and conferences. The History Faculty of Altay State University in Barnaul became the base of a research school oriented on the quantitative methods and GIS technologies in historical demography (studying the process of populating the territory of the region, the migration from the European Russia to Siberia).[31] Another field of interest of the research school is the history of society and economics, including the study of employment and professional mobility, within the framework of the *HISCO* International Project.[32]

The Social History Laboratory of the Institute of Humanities and Social Education of Tambov State University develops methods and technologies of historical demography and social history, works out databases and information resources such as „The First General Census of the Russian Empire"[33] , creates GIS applications[34] and three-dimensional reconstructions of historical monuments and urban areas[35], and implements information technologies in local museums. Tambov researchers created a fractal modeling software, which is efficiently used in humanities applications.[36]

The Moscow School of the Historical Information Science, centered on the Department of Historical Information Science of the Moscow Lomonosov State University, is the heart of the professional community in Russia and the CIS countries. It holds conferences and workshops of the Association 'Istoria i komp'uter' (AIK). It specializes in such fields as the use of mathematical methods and information technologies for the study of social history, economic history and historical demography.
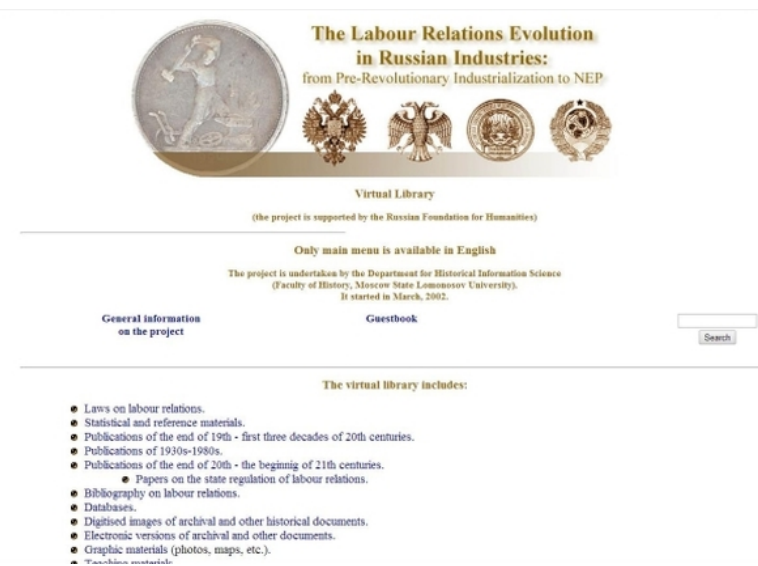

Fig. 2: Project 'The Labour Relations Evolution in Russian Industries: from Pre-Revolutionary Industrialization to NEP'

The Department develops professional Internet resources dedicated to such problems: *The Labour Relations Evolution in Russian Industries: from Pre-Revolutionary Industrialization to NEP*[37], *Dynamics of Economic and Social Development of Russia in the XIX – early XX centuries*[38], it creates virtual reconstructions of the objects of

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[31]Vladimir N. Vladimirov, Historical Geoinformatics. Geographical Information Systems in Historical Research, Barnaul 2005 (in Russian).

[32]See, for example, Vladimir N. Vladimirov / Dmitry E. Sarafanov / Maksim E. Chibisov, On the possibility of Parish Population Registration Data Use for Studying Employment, in: Historical Occupation Studies. Sources, Methods, Analysis, Technologies, Barnaul 2008; pp. 28–50 (in Russian).

[33]<http://www.census1897.com> (13.10.2014).

[34]Elena V. Baranova / Valery V. Kanishchev / Roman B. Konchakov, Problem of the Relationship of Historical Sources and GIS Technologies (based on noble tenure Tambov and Tula provinces late XVIII – early XX centuries), in: Historical Information Science 2 (2013), pp. 42–49.

[35]Roman B. Konchakov / Elena I. Miloserdova / Konstantin S. Kunavin, Multidimensional Reality. Trends and Technologies of Representation of Three-Dimensional reconstructions, in: The Virtual Reconstruction of the Objects of Historical and Cultural Heritage, pp. 68–81 (in Russian).

[36]Dmitry S. Zhukov / Sergey Lyamin, Computer Fractal Modeling and Politological Analysis of the Destruction of Traditional Informal Institutions, in: Modern Research of Social Problems 7/27 (2013). <http://journal-s.org/index.php/sisp/article/view /7201312/pdf_316> (13.10.2014).

[37]<http://www.hist.msu.ru/Labour/english.htm> (13.10.2014).

[38]<http://www.hist.msu.ru/Dynamics> (13.10.2014).

historical and cultural heritage, for example, the project *Virtual Reconstruction of Moscow Monastery 'All Sorrow Joy': Analysis of Spatial Infrastructure Evolution on the Basis of 3D Modelling Methods.*[39] Besides, the Department is an acknowledged leader in mathematical modeling of historical processes.[40]
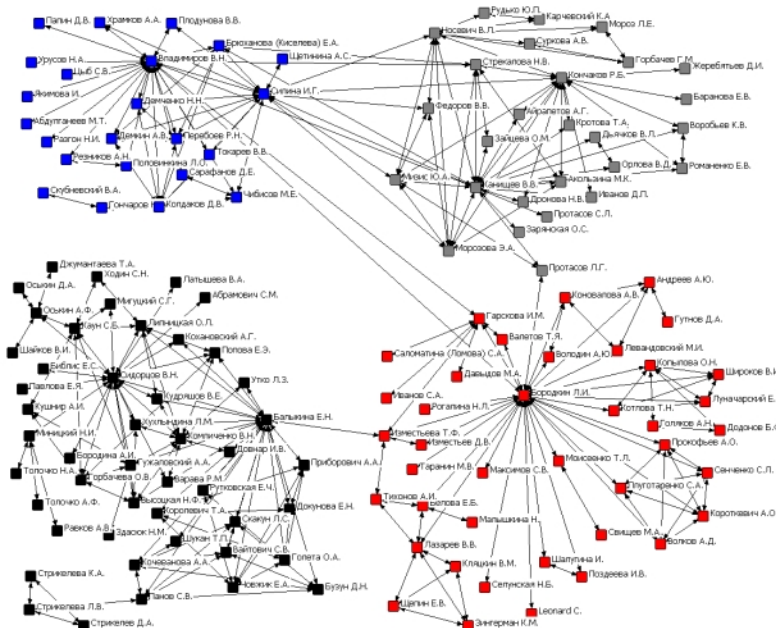

Fig. 3: AIK network structure

The Fig. 3 depicts the nucleus of the AIK network structure, including several major centers and research schools (the ones of Barnaul, Moscow, Minsk and Tambov). One can see strong interregional links

between the researchers from Altay and Tambov Universities, caused by the similarity of their scientific interests (historical demography and social history) and the existence of common research projects. The Moscow school is linked with the Barnaul and Tambov schools. The Minsk school is weekly linked with the Moscow school and not at all related with two others; it is because its research is almost exclusively concentrated on the E-learning technologies while other schools have more diverse interests.

The analysis of the Russian experience in Historical Information Science shows that different research centers continue to maintain and develop the traditional analytical component of computerized research already established in the 1960s–1980s: mathematical methods in social and economic history, in political history, in historical demography, in the study of historical texts; mathematical modeling of historical phenomena and processes. At the same time, as the technical progress goes on, the technological component is being quickly developed. It includes technologies that became widely popular at the beginning of the 21st century such as GIS, 3D modeling, or Web technologies. But nowadays researchers' attention is focused on the informational (resource) component, which is characteristic of the phenomenon of Digital History and Digital Humanities.

If we compare the Russian situation with the European and world tendencies, we can see that in Russia the information support of the humanities and the creation of a new digital infrastructure of research have so far not reached the level achieved in the countries of Western Europe and North America[41], but the trends are similar.

For the time being, our resources are created in the framework of different humanities disciplines, but the first Russian interdisciplinary resources start to appear, as, for instance, a joint project of historians and philologists, the *Textual Heritage site*[42], developed by

[39]<http://www.hist.msu.ru/3D/monastery-auth-1.htm> (13.10.2014).

[40]Leonid Borodkin / Andrey Andreev / Mikhail Levandovski, Applying Chaos Theory in the Analysis of Social and Economic Processes in Tsarist Russia, in: Data Modelling, Modelling History. Proceedings of the XI International Conference of the Association for History and Computing, Moscow 2000.

[41]The reasons for the slower pace of development include lack of financing in science and education as well as the fact that computer and information technologies had a slow start in Russia.

[42]<http://textualheritage.org/index.php?lang=english> (13.10.2014).

the interdisciplinary research community with the goal of description, preservation and publication of manuscripts and early printed books.
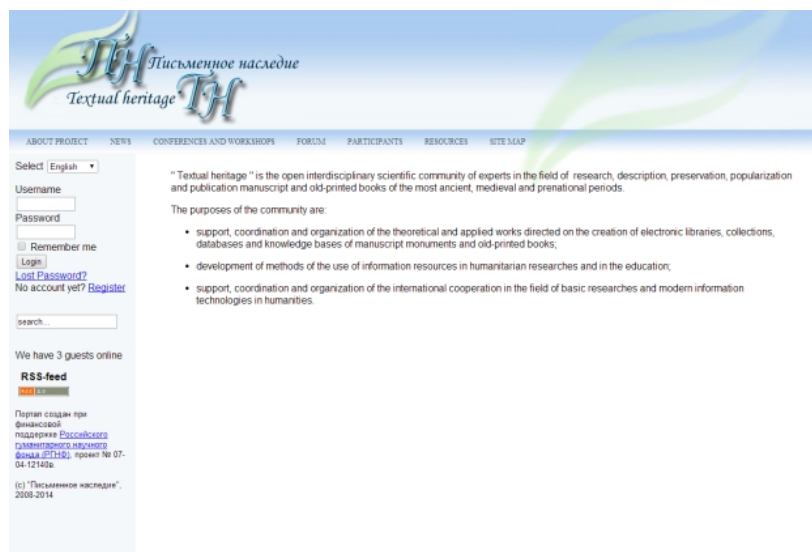

Fig 4: *Textual Heritage site*

It is also evident that Russian subject-oriented resources are in most cases based on the local research projects of separate university laboratories or departments, although there are already more ambitious interuniversity subject-oriented resources, as well as projects of university digital libraries. The „*University Information System RUSSIA*"[43] can be given as an example: it was created at Moscow State University as an electronic library and framework for research and education in the field of economics, management, sociology, linguistics, philosophy, philology, international relations and other humanities.

Archives, museums and libraries start participating in the establishment of research and educational resources. Their goals include preserving the historical and cultural heritage and providing online
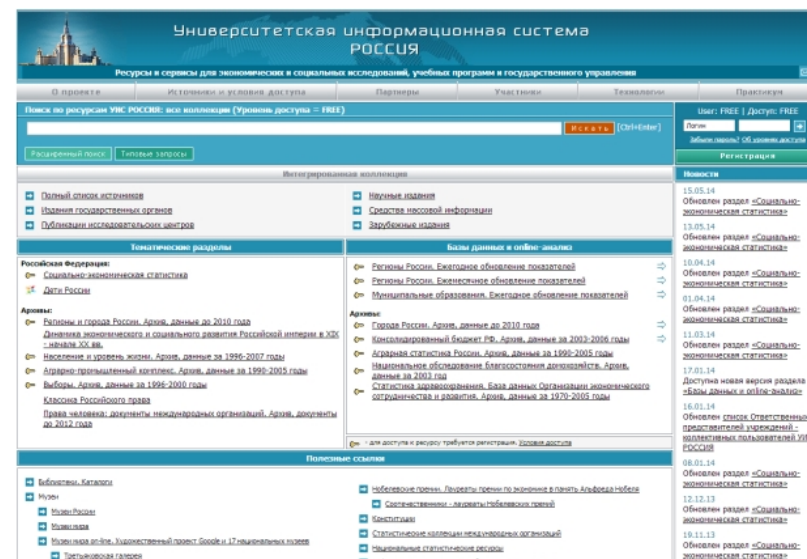

Fig. 5: The 'University Information System RUSSIA' – an example of the interdisciplinary electronic library

access. An example of an archive project containing collections of digitized documents is *Overcoming Troubles (end of XVI – early XVII century) and strengthening Russian statehood*, a joint project of the Federal Archival Agency, a number of federal and regional archives and museums, and other organizations.[44] Another example is *The Documents of the Soviet Era*, a project of Rosarkhiv (the Federal Archival Agency of Russia).[45] An example of a library project containing scientific descriptions of early printed books is *Cyrillic books printed in 16th-20th centuries from the collection of the State Public Historical Library*.[46]

An international collaboration is gradually developing, for in-

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[43] <http://uisrussia.msu.ru> (13.10.2014).

[44] <http://www.rusarchives.ru/smuta/> (13.10.2014).
[45] <http://sovdoc.rusarchives.ru> (13.10.2014).
[46] <http://rarebook.shpl.ru/index.htm> (13.10.2014).

stance, between Petrozavodsk State University and Daugavpils University (Latvia)[47], between Perm State University and Graz University (Austria)[48], between Moscow State University and the University of Helsinki[49], or a long-term collaboration between several Russian universities (Altay, Moscow, St. Petersburg, Tambov, Yaroslavl') and several Western ones (in the Netherlands, in Sweden, in the USA) in the field of historical demography[50] and in the framework of *HISCO*[51], etc.

These tendencies permit us to see the perspectives of development of the information support of Russian humanities and Russian education. First of all it means broadening the integration and the interdisciplinary approach, including collaboration with specialists in archives, libraries, museums, as well as collaboration with specialists in social sciences and in information technologies, to create a large-scale information resources. It would help to reach the level of information support already achieved in many European countries.

However, as we already said in the first part of the essay, the scale of a resource cannot be measured just by the volume of digital data. The volume should correspond to the level of methods and technologies available to users along with the data. In this respect, we and our colleagues from other countries have to solve the same problems: We should develop the resources which offer the users methodical, software and technological online support, e.g. the means of visualization, of content analysis, of virtual reconstruction, and of spatial analysis. To achieve this goal, important additional expenditures will be needed (of money, intellect and time) but it will permit to strengthen the analytical component, which is still under-represented in the existing structure of Digital Humanities, if we consider the Digital Humanities (Digital History) as applied area of Humanities (Historical) Information Science, and not as a kind of Digital Libraries.

[47] Aleksandrs Ivanovs / Aleksey Varfolomeyev, Editing and Exploratory Analysis of Medieval Documents by Means of XML Technologies, in: Humanities, Computers and Cultural Heritage. Proceedings of the XVI International Conference of the Association for History and Computing (14–17 September 2005), Amsterdam 2005, pp. 155–160.

[48] Sergey I. Kornienko / Ingo H. Kropac, The new co-operation: background and implications, in: Documentation and Analysis of the Historical and Cultural Heritage by Historical Information Science Methods. Proceedings of the Joint Seminar (held at Graz, April, 15–17, 2009), in: Series of the Institute of History (University of Graz) 18 (2009), pp. 9–18. <http://www.history.psu.ru/publ/perm-graz.pdf> (13.10.2014).

[49] See, for example: <http://www.helsinki.fi/aleksanteri/ceres/workshop_enhancing_access_to_resources_for_Russian_and_East_European_Studies.html> (13.10.2014).

[50] Steven Hoch / Sergey Kashchenko / Yury Mizis, Project in Russian population history, 1700–1917. Preliminary results, in: Data Modelling, Modelling History. Abstracts of XI International Conference of the Association for History and Computing, Moscow 1996, pp. 89–91.

[51] See: Marco H. D. van Leeuwen / Vladimir Vladimirov (eds.), Historical Classification of Occupations: profession, career, social mobility, Barnaul, 2012 (in Russian).