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RUSSIA AND THE WORLD WIDE WEB IN THE SUSTAINABLE HUMAN DEVELOPMENT FRAMEWORK

The paper analyzes trends and characteristics of the use of Internet technologies in Russia. It demonstrates how Internet promotes sustainable human development and helps to build basic human capabilities in education, health, job search, and empowerment. However, to avoid harmful effects of Internet and information and communication technology (ICT) in general on environment in the near future green ICT policies have to be actively implemented.

Keywords: sustainable human development, Internet, accessibility, education, health, political mobilization, environment.

Formulation of the general problem and analysis of previous studies. The term "sustainable human development" has come to be accepted in the development economics literature as an expansion of human capabilities, a widening of choices, an enhancement of freedoms, and a fulfillment of human rights [4, p xxi].

Fundamental concept of the sustainable human development approach developed by a Nobel prize laureate Amartya Sen [19, 21] and strongly advocated by the United Nations Development Program (UNDP) is a concept of human capabilities – the range on things that people can do or be in life. The most basic capabilities for human development are to lead long and healthy lives, to be knowledgeable, to have access to the resources and social services needed for a decent standard of living, and to be able to participate in the life of the community. Human development paradigm is concerned with building up human capabilities by investing in people and empowering them [4].

Analysis of recent researches and publications and selection of outstanding issues. The theoretical background of the sustainable development concept has been established in the works of J. Davidson [2], S. Fakuda-Parr [17], M. Nussbaum [21], M. Ul-Haq [5], and operationalized in such policy frameworks as human security, social inclusion, and Millennium Development Goals.

In the sustainable human development framework technology becomes a mechanism for promoting human development. Today information and communication technology (ICT) is a vital tool of the sustainable human development and growth. However, there only a few research papers that study the effect of the Internet penetration on human development. The examples are studies by D. Souther and his colleagues [20] and K. Vatra [22]. The reason for this is the absence of the detailed analytical data on the access to ICT in different countries of the world.

The aim of the article is to analyze trends and characteristics of the Internet technologies use in Russia as well as to demonstrate how Internet widens opportunities for sustainable development. This research paper is an outcome of the author's participation in the World Wide Web Index Project carried out by Oxford Economics and World Wide Web Foundation. The Web Index is the world's first multi-dimensional measure of the Web and its impact on

people and nations. It covers a large number of developed and developing countries allowing for comparisons of trends over time and benchmarking performance across countries. By studying the effect of the ICT on the sustainable human development the paper intends to fill up the gap in the current literature of this topic.

Basic materials. The issue of Internet diffusion and use in Russia has been studied in economic literature earlier. For instance, Finnish economist K. Liuhto analyzed tendencies in the use of ITC technologies in 2005 based on the data from 1989 to 2004 [23]. According to his research in 2003 only 9 people of 100 had a PC at home and close to 7% of population in Russia had access to Internet in 2005. Liuhto points out that such low penetration of Internet technologies may cause what is called "digital divide" between developed countries of Europe and North America and Russia.

A year later, in 2006, R. Rose published a paper on the model of the Internet take-off in Russia [16]. He used the results of the survey carried out by Levada Center to access the penetration of Internet in Russia between 2000 and 2006 (table 1).

Table 1 – **Trends in Internet use, awareness and ignorance. Survey results (over 2000 respondents)** [16, p. 9]

	2000	2001	2002	2003	2004	2005	2006
User (%)	3	7	9	11	12	15	17
Aware (%)	76	81	82	78	80	76	78
Knows nothing (%)	21	12	9	11	8	9	5

As we can see the survey slightly overestimates the percent of users online for Russia in 2003 compared to data provided by Liuhto. Also the table illustrates the phenomenon of proxy users: those people that have friends or relatives that use Internet and ask their assistance in sending e-mails or searching for information on the web. According to Rose it is not correct to speak about "digital divide" in the case of Russia because high educational level of the country's population and possession of technical skills (the necessary prerequisites for the fast diffusion of Internet), are in place. Using regression analysis Rose demonstrated that education and age are factors that most influence the rate of Internet adoption in Russia. He also predicted a fast rate of growth of Internet use after 2006.

In fact, Russia experienced a boom in Internet diffusion after 2006. In 2008 Runet accounted for 41 mln users or 29% of the total population. In the end of 2010 59,7 mln citizens (43%) used the web [18] and the figure rose to 70 mln (48%) by the end of 2011. In 2011 28% of Russian population accessed Interned via mobile devices. As of 2012 71% of users in Russia search for information on the web, 57% visit social networking sites and 53% read news online. Via the web people also communicate with each other (by e-mail and Skype), read books, watch films and even learn foreign languages.

The importance of Internet and ICT in general for human development has been recognized recently when in July 2011 United Nations declared Internet access a human right [7]. As an essential part of the everyday life Internet should be accessible to all. However, disabled people –people with hearing and visual disabilities, people susceptible to seizures and people with learning disabilities (dyslexia) – do not have adequate Internet access.

A. Popko and A. Kamynin reviewed the accessibility standards in their recent

publication [14]. On the 1st of January, 2009 a national standard: "GOST R 52872-2007: The Internet-Resources. Requirements of Accessibility for Visually Impaired Persons" came into force in the Russian Federation. There is also a special GOST that regulates accessibility standards for people with dyslexia. However, these standards are not being actively enforced. Moreover, presently Russian Web-accessibility standard ignores special needs of deaf and hearing-impaired people, persons with limited movement and cognitive dysfunctions, and other groups of the disabled [14]. Overall, we can say that as of today in Russia Internet is not adopted for the disabled. From 275 thousand blind people that live in Russia only 12% use Internet. This percentage is slightly higher for other groups of disabled. Recognizing the importance of the World Wide Web for sustainable human development President Medvedev in November of 2011 gave an order to the government agencies to develop and implement accessibility standards for invalids [26].

In order to implement accessibility standards fast the initiative should come from private firms and sites that roughly can be referred to as "socially indispensable". Large companies set example in that sphere: Microsoft, ABBYY, Code Factory and some other enterprises already produce special applications for their programs designed for the disabled: Windows, Lingvo, VoiceOver, etc. However, Web resources of educational institutions (especially those that offer distance learning programs), mass media, financial organizations; large (nationwide) search portals and social networks, e-mail systems and online payment services should also participate. There are, in fact, some positive changes: recently to improve Internet access for the disabled in several cities of Russia (i.e. Stavropol, Saint Petersburg, Vladimir) public libraries with Internet access have been opened.

Internet helps to build up basic human capabilities: education and health.

Distance education existed in the former USSR since 1920s in the form of education by correspondence. With the introduction of ICT the situation has changed. As early as in the 1990s in the regions of Moscow, St. Petersburg, Chelyabinsk, Samara and others universities carried out a number of experiences and grant programs (sponsored by international organizations and companies like NATO, Soros foundation-Open Society Institute, IREX, Project Harmony Inc., and others) related to the information technologies use in distance learning [12]. By the end of 1999 85 Russian universities were developing their own distance learning programs. Several distance learning programs for schoolchildren, some using TV technologies, appeared at that time. In 2001, Teleshkola, the first full-scale distance learning channel for schoolchildren, made its debut on NTV+, a satellite channel. Hundreds of the best teachers in Moscow, St. Petersburg and Nizhny Novgorod participated in the project, which was backed by the Education Ministry [8].

Government is involved actively in promoting distance learning in Russia. In 2002 in the framework of a special state project a special educational Internet portal *www.edu.ru* was introduced. This portal contains curricula for primary, secondary, and tertiary education. It is targeted at schoolchildren, students, teachers and university professors. Materials include course programs, study guides, books and useful links and are grouped by subject and education levels. Registered users can upload their own resources (registration is free and open to everyone). Total number of materials exceeds 25000. This website is visited by 100 thousand people daily! [25].

Internet technology helps restore and maintain academic ties to countries of the former USSR, especially to ethnic Russians living there. For instance, Tomsk State University has a distance learning center in Kazakhstan where Russian and Kazakh student can take courses

online. Moreover, distance learning offers numerous possibilities for the disabled that can partake in education activities without leaving their homes.

Internet is also used for searching information about foreign universities, programs that they offer, and application procedures. Finally, some foreign universities use online learning to teach their prospective students the language of the country. This approach is in effect in France where universities teach French to Russian and Chinese prospective students via the web [1].

In health and healthcare the World Wide Web offers numerous possibilities for Russian citizens. The web is used for disseminating information about epidemics and rare diseases prevention. There are special sites devoted to epidemics (hivrussia.ru, stopspid.ru), hepatitis B and C (hepatitu.net), and influenza (gripp.ru). Hivrussia.ru is an official website of the Federal AIDs Center (Federalnyi Centr SPID) that contains statistics on the number of HIV positive people in the country and provides addresses of center's branches across Russia. Ministry of Health and Rosstat also publish extensive statistics on health (mortality, morbidity, life expectancy) that is available online. Several sites are created in order to raise citizen's health awareness and promote healthy lifestyle. Examples include: stoptabak.ru, nosmoking.ru, takzdorovo.ru, addhealth.ru, etc.

In Russia health care professionals have traditionally had limited access to evidence-based practices due to lack of Internet access, few Russian translations, and difficulty obtaining translated material. In September of 2010 within the framework of the Healthcare improvement project in Russia of USAID a new portal healthquality.ru was launched. As of August 2011 it contained a library of 270 Russian-language documents and links to quality improvement (QI) methods and clinical topics. Methodological and clinical experts provide assistance through the portal by answering questions posed by teams and suggesting innovations to test. A total of 94 QI teams from six regions of the Russian Federation collaborate on this project [9].

With a goal to improve health, a basic human capability, Administration of Moscow used ICT to create an electronic passport of health that contains information on patient's anamnesis, history of doctor's appointments and hospitalization, if any [11]. Electronic passport of health simplifies access to patient's records for doctors. Recently a new online service has been introduced: an online registry. Now residents of big Russian cities can schedule appointments with a doctor online (i.e. zdravnsk.ru in Novosibirsk). Overall, access to health and educational online resources greatly improves quality of life of an average Russian citizen.

Sustainable human development is also about gender equality. Human development means offering opportunities to women that are already available for men.

In terms of Internet use, Russia has achieved the gender equality – the share of female users in 2011 was approximately 65% [9]. This is a great leap from 2000 when only 39% of users were women [15]. This is important, since on the global scale number of male users is significantly higher (especially in the Middle East). The average Russian blogger, for instance, is female. This may be linked to the fact that women slightly outnumber men in the Russian Federation.

Women break new grounds in Russia's Internet business by actively founding small Internet startups. Internet startups require relatively small initial investments (around USD 10 000) and are easy to launch. One example of a female groundbreaker is Yelena Masolova, who launched Darberry, a website discount service similar to Groupon [9]. Many women also sell cosmetics or accessories via Internet.

Every year the number of female IT professionals in Russia increases. Still only about 15% of employees in the IT sector are women. From all job applicants in IT 8% and 4,5% would like to work as programmers and system analytics respectively. There are some notable exceptions: for instance, 40% of testers are women. However until now women are virtually absent in senior management of IT companies, industry and professional organizations such as the Internet society, and line ministries responsible for the IT sector. From this we can conclude that there are still some outstanding gender issues in the IT industry in Russia.

Sustainable human development framework states that people build up their capabilities to find jobs that would not only be a source of income but would also bring joy of creativity. Internet can serve as a powerful tool in job search. In fact, more and more people in Russia are using a variety of resources during the job search process, including relevant Internet resources. According to the Yandex analytical report published in 2011 [24] job sites (job.ru, rabota.ru, superjob.ru, etc.) in Russia are visited by 3 mln applicants monthly and the number of queries exceeds 30 mln. The greatest number of positions offered is in sales, transport and IT. The highest salaries are offered to professional in resource extraction industries, transport and IT. Most applicants are looking for jobs in their own localities (88%). However, due to interregional difference in earnings over 10% of people are willing to relocate to Moscow or St. Petersburg where pay is bigger even when accounted for difference in rent prices. Only 4% of vacancies offer flexible hours which means that opportunities for students that would like to work part-time are limited.

There are, of course, other online opportunities and services available via the net that we cannot cover here, such as, for example, e-commerce. However, a subject that we feel we must discuss is a political mobilization via Internet since political mobilization is a way of empowerment without which no sustainable human development is deemed possible. Ability to participate in the lives of communities is an essential part of the sustainable human development paradigm.

In 2010 researchers at Harvard University prepared a report on RUNEt politics and political mobilization in Russia [3]. According to B. Elting and his colleagues Internet is an important political tool in Russia. All large parties have their own websites and most of them are updated on a daily basis. Party programs and leaders' speeches are available on these websites and the forums are actively used to attract supporters and voters. Volume of activity boosts when parliamentary or presidential elections approach: multiple forums are created and propaganda through the websites becomes part of election campaigns.

All kinds of opposition (liberal, nationalist, etc) are present in the web. There are groups against authoritarianism, freedom of speech, and falsification of history. Unfortunately, there are also extremists' blogs that advocate violence towards particular nationalities or immigrants. Existence of such websites threatens human development progress. Social and environmental activists also have their blogs and discussion forums in the Russian blogosphere.

Most of the public discourse on politics and public affairs takes place in Livejournal and some other blogs. B. Etling found 17 000 blogs that were most cited. Tweeter has also seen exponential growth in the recent years in Russia. Recently social networking sites have become a tool for mobilization: invitations to a meeting on Bolotnaya Square in December, 2011 were sent via Facebook, and Vkontakte was used to send invitations to meeting in other cities. Although government officials state that the web in Russia is not censored, arrests of some journalists and political activists that published online cast doubts on

these statements.

Finally, human development has to be sustainable. The term "sustainable development" was coined by Brundtland Commission of the UN in 1987: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

ICT can contribute to sustainable development in several ways. First, multiple online activities such as teleworking, online financial services, online shopping, online learning, etc. can significantly reduce the transport use and energy consumption. Web activities require less floor space and generate fewer amounts of noise and pollutants. In has been estimated that possibilities to work from home via Internet can lead to a 38% reduction in car journeys per person per week. Also a study conducted by Cambridge County Council found that if some works would become "location independent" it would result in: reduction of commute miles by 500000 thousand-1,25 million per year, reduction in commute hours by 40000-75000 per year, and reductions in emissions of CO (up to 26200 kg) and carbon dioxide (up to 32300 kg) [6]. Although there are no such estimates for Russia it is known that online services do reduce the volume of resources and energy used. Another ICT initiative supported by Russian government is e-government which, among other goals, has a target to turn government agencies into "paperless offices" and limit deforestation.

However, there is a downside to the issue of the ICT's contribution to sustainability. The primary goal of ICT in the context of sustainable human development is to improve the quality of human life. Overuse of ICT may lead to large decrease in human, social and community activities, and uncontrolled source of information can lead to a decrease in quality of education. ICT should be a tool to improve people's life and technology should not be used only for the sake of technology [22].

ICT can also harm environment. In fact, it the fastest growing source of CO_2 emissions to the atmosphere which doubled from 2002 to 2006. Carbon footprint of ICT continues to rise: emissions are expected to grow at 6% compound annual rate almost tripling by 2020 [20]. To avoid environmental damages in the future "green ICT" policies (making ICT more environmental friendly) have been introduced by several countries including Russia. Agenda of green ICT includes paperless offices, introduction of smart grids, and energy management. Equally important is people's awareness of a possible harm to environment by ICT so that people would be willing to limit the use of ICT when needed.

Conclusion. In our society today ICTs and Internet in particular are increasingly becoming a gigantic force underpinning sustainable global economic development. Russia, with its penetration of ICT rising rapidly, is in the center of sustainable human development processes backed by the Internet. The World Wide Web in Russia today is a source for expanding human capabilities, including education, health, and empowerment. However, some issues remain: for instance, the problem of accessibility for the disabled should be solved. Also ICT in general and Internet in particular can have harmful effects on the environment in the country. To avoid this green ICT policies have to be implemented more actively.

1. Bailly P. Distance learning education as substitute to student's motilities / P. Bailly, J.L. Besson // 23rd ICDE World Conference on Open and Distance Learning including the 2009 EADTU Annual Conference. – Maastricht, Netherlands. – 2009. – 7-10 June. – 14 p.

2. Davidson J. Sustainable Development: Business as Usual or a Sustainable Way of Living / J. Davidson // Environmental Ethics. – 2000. – Vol. 22, Issue I. – P. 25-42.

3. Public Discourse in the Russian Blogosphere: Mapping RUNet Politics and Mobilization, Berkman Center Research Publication / [Etling B., Alexanyan K., Kelly J. et al.]. – № 2010-11. – Harvard University, 2010.

4. Fakuda-Parr S. Handbook of Human Development: Concepts, Measures, and Policies / S. Fakuda-Parr, A.K. Shiva Kumar. – Oxford University Press, 2009.

5. Haq M. Ul. "The Human Development Paradigm" in Readings in Human Development / M. Ul. Haq. – Oxford University Press, 2003. – P. 17-21.

6. ICT and Sustainability: Making Work More Environment-Friendly and Creating a Better Society. Flexibility Briefing Paper [Электронный ресурс]. – Режим доступа: http://www.flexibility.co.uk/issues/sustainability/sustainability.htm.

7. Kravitz D. UN Report Declares Internet Access a Human Right [Электронный ресурс] / D. Kravitz // Wired.com Publication. – 2011. – June 3. – Режим доступа: http://www.wired.com/threatlevel/2011/06/internet-a-human-right/.

8. Kikhovsky S. Distance Learning: Russia in Reaching Out / S. Kikhovsky // New York Times. – 2001. – January 7.

9. Kriulova I. HCI Russia Launches Web Portal for Health Professionals [Электронный ресурс] / I. Kriulova, S. Whitmarsh // URC News. – 2011. –August 2. – Режим доступа: http://www.urc-chs.com/news?newsItemID=159.

10. The Web Index Project. Web Foundation [Электронный ресурс]. – Режим доступа: http://www.webfoundation.org/projects/the-web-index/.

11. Markitan A. Women Break News Grounds in Russia's Internet Business [Электронный ресурс] / A. Markitan // RIA Novosti. – 2011. – April 12. – Режим доступа: http://en.ria.ru/analysis/20110412/163479388.html.

12. Moiseeva M. Distance Education in Russia: Between the Past and the Present / M. Moiseeva // The Quarterly Review of Distant Education. – 2005. – Vol. 6 (3). – P. 217-225.

13. Petukhova S. Information Technology and Russia's Social Modernization [Электронный ресурс] / S. Petukhova, M. Strepetova // Conference Paper, 21st European ITS Conference. – Режим доступа: http://econstor.eu/bitstream/10419/44319/1/27_petukhova_strepeova.pdf.

14. Popko A. National Accessibility Standard in the Russian Federation: A First Step to Creating a Barrier-Free Internet [Электронный ресурс] / A. Popko, A. Kamynin // Information Society Magazine. – 2010. – April. – P.1-7. – Режим доступа: http://g3ict.org/resource_center/publications_and_reports/p/productCategory_books/subCat_3.

15. Primo N. Gender Issue in the Information Society / N. Primo. – UNESCO Publication, 2003. – 83 p.

16. Rose R. Internet Diffusion Not Divide: A Proximity Model of Internet Take-off in Russia / R. Rose // Oxford Internet Institute, Research Report. – 2006. – № 10.

17. Readings in Human Development / edited by S. Fakuda-Parr and A. K. Shiva Kumar. – Oxford University Press, 2003.

18. Russia Online. New Media Trend Watch Report [Электронный ресурс]. – Режим доступа: http://www.newmediatrendwatch.com/markets-by-country/10-europe/81-russia.

19. Sen A. Editorial: Human Capital and Human Capability / A. Sen // World Development. – 1997. – Vol. 25, № 12. – P. 1959-1961.

20. ICT, the Internet and Sustainable Development [Электронный ресурс] / [Souther D., MacLeand D., Akoh B., Creech H.] // International Institute for Sustainable Human Development Publication. – 2010. – Режим доступа: http://www.iisd.org/pdf/2010/icts_internet_sd_new_paradigm.pdf.

21. The Quality of Life / edited by A. Sen and M. Nussbaum]. – Clarendon Press, 1993.

22. Vatra K.M. The Role of ICT for Sustainable Development / K.M. Vatra // PARADISO International Workshop Presentation. – Brussels, 2008. – June 12-13.

23. Лухто К. Россия – на пути к информационному обществу? / К. Лухто // Вопросы экономики. – 2005. – Вып. 4. – С. 113-120.

24. Рынок труда и поиск работы в Интернете. Аналитический отчет [Электронный ресурс]. – Яндекс. – лето 2011. – Режим доступа: http://download.yandex.ru/company/Yandex_on_Jobsearch_2011.pdf.

25. Сигалов А.В. Открытые образовательные ресурсы в России: достижения и проблемы / А.В. Сигалов, А.К. Скуратов // Выступление на международном семинаре «Открытые образовательные ресурсы и права интеллектуальной собственности». – Москва. – 31 мая-1 июня.

26. Юрченко И. Интернет надо адоптировать для инвалидов [Электронный ресурс] / И. Юрченко // Комсомольская Правда. – 2011. – 16 ноября. – Режим доступа: http://kp.ru/online/news/1020659.

М.О. Канєва

Росія та Інтернет в концепції стійкого людського розвитку

У статті проаналізовано основні тенденції та характеристики використання інтернет-технологій в Росії. Продемонстровано, яким чином Інтернет сприяє стійкому людському розвитку та розвитку можливостей людини у сферах здоров'я, освіти, пошуку роботи та політики. Визначено необхідність активного впровадження політики охорони навколишнього середовища в сфері ІКТ з метою уникнення негативного ефекту Інтернету та ІКТ в цілому на навколишнє середовище в найближчому майбутньому

Ключові слова: стійкий розвиток людства, Інтернет, доступність, освіта, здоров'я, політична мобілізація, навколишнє середовище.

М.А. Канева

Россия и Интернет в концепции устойчивого человеческого развития

В статье анализируются основные тенденции и характеристики использования интернет-технологий в России. Показано, каким образом Интернет способствует устойчивому человеческому развитию и развитию возможностей человека в области здоровья, образования, поиска работы и политики. Определено необходимость активного внедрения политики охраны окружающей среды в сфере ИКТ с целью избежания негативного эффекта Интернета и ИКТ в общем на окружающую среду в ближайшем будущем

Ключевые слова: устойчивое человеческое развитие, Интернет, доступность, образование, здоровье, политическая мобилизация, окружающая среда.

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