

*Information*

**SOCIAL AND CULTURAL ASPECTS OF THE  
INFORMATION SOCIETY IN RUSSIA**

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Global informational process has national origins in history, culture, science and technology. Each country has its own premises for global communication. These are prerequisites of history.

Let us look at the innovative policy in the USSR. The leaders of the country stress every time the need for technical and technological innovations. Many fresh scientific and media abstracts argue for high level of innovations in the USSR and poor technical policy in contemporary Russia. From the first glance this is correct—for example, most space and nuclear technologies 30–40 years old still compete.

But the truth is that it was only one innovative technology which had an absolutely new character. This is laser technology. The rest, even nuclear and missile technologies were not created in the USSR. They were managed to practical use in our country. It cost many efforts, but technical idea itself did not belong to Soviet researchers.

There were mutual features of Soviet technical achievements. Most of them were oriented on the military use and cost huge resources. Human and natural resources had no count. To compare results in industrial and

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post-industrial sectors (roughly informational and biotechnologies), it is clear, that the USSR had failed in post-industrial competition, when the mass technologies (PC, Internet) had been developing. The distinctive thing is that the doctrine of adopting technology was elaborated especially in the field of computer science.

Briefly, the history of the computer technology in the USSR begins with the original machines “Minsk” and “Ural”. Nevertheless their quality and quantity were not at the level of the USA. At the end of 1960’s, the academician A. A. Dorodnitsyn, the chief of the state commission for computer technologies, estimated a nine year gap between the USSR and the USA. Moreover, the original architecture of the program products gave no opportunity to use the worldwide experience, and these series were not compatible to each other.

To manage these problems, the Soviet government made a decision to copy global computer products. In 1968 in Minsk, the specialized bureau began to copy IBM 360. They began to produce computers of the ES and SM series. Operational systems DOS ES and OS ES were created. Later on, Apple PC was copied as “Agat” serial.

What is the result of this duplication policy? The IBM 360 copy gave an opportunity to follow global technology, to improve Soviet economy, to train many technicians. But from the point of view of the socio-cultural climate for innovations the result is not the same. In fact, the technical loss was conserved. According to the leading technician of the ES serial V. V. Przsijalkovsky, these computers were not the exact IBM 360 copy as they followed the low level of Soviet electronic industry. In other words, techniques themselves were pretty modern, but the technology loss was reproduced.

Another problem has been the stealing of the technology. Because of this unfair policy IBM could not have real technical cooperation with Soviet country. So it took time to get complete technologies and to adopt

them. The time gap became wider, and IT lost deeper. Anyway, this scheme for technology duplication had to be profitable to both partners.

The ES project was accepted by the Economical Council for Cooperation between the socialist countries, but it did not run. According to V. V. Prsijalkovsky, mutual work was torpedoed by the security regime and ideology.

Program products were also copied without licenses, as in the USSR algorithms and programs were not protected by copyright law. Probably that was the point when legal and moral nihilism had started.

If we compare this situation with the innovation policy in Japan, we can find out that Japanese firms paid for licenses, they stayed in close cooperation with developers, and competed hardly. Not one of these factors worked in the USSR computer industry and there were no stimuli for innovations. Moreover, the time lag in duplication became larger because of the skyrocketing progress in PC field.

While this policy worked in socialist directive economy it became ineffective in the market economy. Some problems have been solved in 1970's, but in nowadays the "mines" of the Soviet period do not help innovations.

For example, Zelenograd city, the center of electronic industry in our country, had the top level of production between the 1960's and 1970's. According to Noble laureate in Physics G. Alferov, now the world level is 0,35 microns, and Zelenograd can make only 0,6 microns with the help of foreign technology.<sup>1</sup>

The reason of this failure is that during the Soviet period, Zelenograd had huge undetermined investments. Nowadays, it has no investment and no reason for growth. But the high speed for IT innovations is the global tendency now.

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<sup>1</sup> *Expert*, 2000, no. 30.

Thus this policy did not help to reach IT-leadership. It also did not found the informational society in the country. The problem was not in technologies but in social, cultural and political reasons.

What are the aspects of innovations in modern Russia? There are some general principles for IT development:

- they heighten efficiency and change basic economical statutes
- IT growth comes together with new management and new corporate communication
- IT change social structure and social norms
- IT represent infrastructure but at the same time they give privilege in competition

Let us examine these aspects each in particular.

The US analyst N. Carr makes difference between proprietor (original) and infrastructure technologies: “Proprietor technologies are those which are in certain company’s property. For example, pharmaceutical company could have the patent on the chemical juncture basic for the whole kind of preparations. If company’s technologies are protected from doubling, they can produce long-lasting policy advantages and high profit compare to competitors. ... On the contrary, infrastructure technologies have more value for mutual, communal use.” Infrastructure technologies there emerged from the Industrial revolution—railways, electricity, telegraph, telephone, etc.<sup>2</sup>

According to N. Carr, IT are no more a competitive factor, they are rapidly going to the infrastructure status. Everybody does everything in the same way. It seems to be true: everybody uses Internet, standard pro-

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<sup>2</sup> Nicolas CARR, *Блеск и нищета информационных технологий. Почему ИТ не являются конкурентным преимуществом, Секрет фирмы*: Moscow 2005, p. 33 (cf. English edition: *Does IT Matter? Information Technology and the Corrosion of Competitive Advantage*. Boston: Harvard Business School Press 2004).

grams and standard facilities. Companies that fight against these tendencies, have to comply sooner or later.

In April 2006 the last bastion against Microsoft failed. Under the pressure of the users Apple Computer launched the program for its new computers compatible with Microsoft Windows XP system. For many years Apple company's slogan was "think different", Apple was proud of its own exclusive position, but general principles for global IT exchange appeared to be stronger.

Speaking of innovations we should understand the difference between Internet and electricity, for example, to stress its development. According to *Expert* magazine, Japan has the first place (90 % of citizens are the internet-users), then comes Canada (72 %), USA (71 %), South Korea (62 %) and France (61 %). Russia has only 12 %.<sup>3</sup> (5). It is clear, that modern innovations are based on the Internet facilities, and innovative strategy should count on it. So, it should develop IT infrastructure, but Russia has the time lag again.

Another aspect of internet infrastructure is free access to e-libraries and databases. There are many resources of this type in Russian Internet, but only a few of them obey the copyright law.

The mainstream for IT growth now is the quality of information and its analysis, amount and speed are not on the top position. One of the steps for innovation strategy should be the net of resources on science and technology. These resources and their copyright should finance the government or charity organizations. The government main function in innovations is its infrastructure support.

IT progress means that modern infrastructure is the recent proprietor of technology. So, permanent innovations have competitive advantages for the firms and for the state.

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<sup>3</sup> *Expert*, 2006, no. 14.

An absolutely new technology has the most long lasting priority. It depends on specialized standards that dominate in the IT progress. The best technology can loose if it is not accepted as a global standard. For example, computer science specialists inveigh Microsoft program products for mistakes, but Microsoft standards are set because of the right business strategy.

Technology providers get payments for its use. For example, Philips and Sony alliance get royalty for CD and DVD audio-video standards. They have 2 cents for each CD or DVD and 2 % cost for players.

IT changes some economical statutes:

1. IT do not intensify only one sector of the firm's activity, IT make more effective all its aspects from design and marketing to counting, and in all sectors of economy.
2. Markets become more effective and clear because of IT which help to have immediate information about prices and distributors, and to minimize operational expenses.
3. IT global character gives an opportunity for the money processing immediately all over the world.
4. IT help innovations and reduce time expenses for developing new products and services. The classic example is the auto strength test. Many cars had to be crushed lately. Now virtual testing saves time and the cars.
5. Economical progress depends on knowledge production. Additional cost come from innovations in products and processes. New devices at first are of the high price, but later on many companies buy its technologies and the price comes down. The last example of the IT transfer is the PC technology transaction between IBM and Lenovo (China).
6. IT innovations provide new quality of communication, technology and decision making. This effect is called "the efficiency paradox". This effect is the result of information exchange in the field of educa-

tion, medical and public services. It is not possible to count the real IT effect in these spheres.

7. IT changes the interrelations between the development, production (duplication), education and service (renovation). If the competes have stolen the car draft, they should nevertheless have special technology to produce the car. The process of development *itself* is very expensive. IT products make difference: program design is very expensive, but its copy costs nothing. At the same time the user education and renovation should be expensive too. Therefore IT innovations should be permanent.
8. IT benefits depend on the quantity of the users. This effect emerged earlier in the phone net establishment. IT give this effect global character. The most people have e-mail the higher is its effect. The Internet pioneer Robert Metcalf formulated the law for the net benefit growth in proportion to the quadrate of users.<sup>4</sup>
9. It leads to the new productive and market strategies. For example, net strategy depends on the new understanding of copyright. So, operational system Linux and all programs with installed Linux modules have no single owner. The Finnish student Linus Torvalds was the author of the nucleus program. He placed the program code in Internet for free use. The Open Source movement came into being, and full quality operational system was created by internet community in a few years. The subculture of the programmers was arranged by Linux: people worked for free because of their love to programming and to get high professional reputation. Now Linux is an operational system for the users and also it works as a server system popular in IT companies.

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<sup>4</sup> Manuel CASTELLS, *The Rise of the Network Society. Vol. 1 Information age: economy, society, and culture*. Oxford: Blackwell Publishers 1996.

The question is if the Linux innovation policy overpowers the traditional one. For sustainable growth one should combine methods and IT strategies. The ideology of innovations means permanent risk and long lasting movement to renovation. Managers think that innovations themselves provide synergy organizations.

Therefore Russian way to innovative development means complex strategy in technology priorities, law assistance, educational change, IT philosophy of management, socio-cultural and ecological aspects of technologies.

One of the specific features of modern Russia is the industrial and post-industrial combination. Post-industrial society in Europe is based on industrial values and management structures. Industrial period in Russia have been under the pressure of communist ideology, so many industrial strategies are still new in this country. But the IT management needs more. There are basic principles for IT culture:

*Intelligent business.* Technology growth is based on scientific research. In Russia the applied theory connection is still poor. Russian IT professionals are valuable in the world, but there is no valuable Russian IT market product.

*The leading companies structure change.* IT specialists think that the leading companies should deal with software design, sales and service. They should pass production to different companies in various countries. Russia has the contradictory position: IT researchers produce ideas, but IT companies use foreign technologies. Another specific thing is that competing companies make alliances with each other and do not enter the international market.

*The leading companies produce new quality in a wide sense. New quality means new mode and quality of life, new services and facilities.* New informational culture corresponds to the informational society and happens to be the resource for growth itself. To realize the internal innovation potential is only possible with the help of new products and technologies for the *global market*.



*Education is the main factor for IT growth.* Russian system of education is rather developed but it has specific cultural and historical heritage. Education in Engineering was established for the use of the giant state projects and military projects. This system can hardly generate innovations for the market economy.

The author's position is that historical examples and modern experience demonstrate technological, political, socio-cultural and organizational basis for innovations. Russia has social and cultural presuppositions for informational society and against it.