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INFORMATION SPHERE: PROSPECTS OF DEVELOPMENT AND SOCIAL RISKS

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ABSTRACT

In article the increasing relevance and the information importance in spheres of the modern habitat of the person from a position of a scientific discourse, public attention and dialogue of the international community is considered. The analysis of results of the All-Russian research (expert poll) allowing estimating ponderability of the existing information threats and risks in the light of the existing tendencies of expansion of processes of informatization is offered. As a result of a research the most significant threats and risks of the information environment for the existing economic spheres are defined, the factorial fields catalyzing realization of threats are designated. The demand of administrative measures is defined and the most effective measures of regulation of information risks of the habitat of the person are allocated. It is revealed that experts say that the level of information security in Russia can be characterized as acceptable, with localization of problems in a zone of adoption of administrative decisions and storages of information. The actions undertaken for leveling of risks and inhibition of threats belong rather to group of local measures while their globalization does not find reflection in a complex of information security of Russia. When comparing a situation of the information sphere with other components of the habitat (the natural sphere, the sociocultural sphere, technosphere) the feeling of visible wellbeing and non-materiality of the existing threats is created.

Keywords: habitat of the person, information sphere, consciousness virtualization, communicative capital, information risks.

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INTRODUCTION

The information sphere as integral part of technical progress, takes the leading place in designing of the modern habitat of the person. Being a technosphere element, owing to the existing evolutionary tendencies, it is allocated on the independent Wednesday having own history and a trajectory of development.

Considering the information sphere and its processes as a part of a tech evolution [Tsvetkov, 2005], recently more and more researchers incline to informatization perception as main process info sphere, as a condition of evolution of society, a condition of its transition from an industrial form of the organization to information [Lonsky, 2015; Starlings, 2001]. The scientists addressing researches of this sphere produce theories and offer analytics, the specific regularities showing to the reader, sphere tendencies and unique risks [Castells, 1996-1998; Zavlin, 2003; It is fervent, Roman, Shilova, 2016; Kolesnikova, Vasilenko, Mityasova, 2017; Lion, 1988; Webster, 2004; Shapovalova, 2015; Shilova, 2015; etc.] which ponderability, at the embodiment in reality, is capable "to displace poles" human evolution, having given to tech sphere objects the subject status [Shapovalova, Gozhenko, 2015; Shapovalova, Alekseenko, 2015]. Futurological scenarios of extrapolation of current trends of the information sphere are widely submitted in N. Bostrom, V. Vindzh, E. Davies's works, St. Lem, J. Neysbit, E. Toffler and H. Toffler, E. Yudkovski, etc. [Bostrom, 2002; Vinge, 1993; Davies, 2008; Lem, 2006; Neysbit, 2003; Toffler, Toffler, 2008; Yudkovski, 2008; etc.].

The attention of society to the information sphere, its development and risks, is attracted also by means of mass media. Only for the last year (2017) on this subject it is possible to select more than 400 publications concerning risks of informatization.

Analyzing subject of the publications designated above, it is possible to specify that the greatest attention of researchers is drawn to the subjects connected with information risks in the field of the social relations (for example, informatization of society and the population, information inequality); politicians and states (informatization of management process, information wars); commercial activity (creation and commercialization of information product), etc. (table 1).

Table 1. Subject of publications of media on problems of development of the information sphere

Name of a subject	quantity
Social problems	78
Politics and state	67
Transactions, projects, investments	68
State regulation	54
Production activity	59

The information sphere, its problems, threats and risks become a subject for discussion and the international community in which join, besides scientists, authorities and productions. Despite attempts to develop a uniform look concerning information security and regulation of information expansion, still there is a number of the critical moments which are simply not reducing tensions in the information sphere, but also producing additional, real and potential threats of this component of the habitat of the person. The most part of such disagreements is noted in the sphere of regulation of information (cyber) space. So, the position of the USA, the European Union and Japan inclines that the state should not control cyberspaces, keeping the principles of democracy both of-lain, and on-lain. Russia, the countries of the former Soviet Union and China assume need of state regulation of a cyberspace, emphasizing respect for sovereignty of the state in it. It is at the moment difficult to predict whose position will lead to more effective result and as it is transformed in social system of the future.

RESEARCH METHODS

In development of this subject by the Center of sociological researches of NIU "BELGU" within implementation of the project of the Russian scientific fund "Forecasting and Management of Social Risks of Development of Technogenic Human Systems in Dynamics of Processes of Transformation of the Habitat of the Person" the All-Russian expert survey was conducted. The research is conducted by the staff of joint research laboratory of transdisciplinary researches (NIU "BELGU", ISPI RAS, YuZGU). Examination of information threats, the reasons and opportunities of prevention of situations of violation of information security in regions became the purpose of expert poll.

Survey was conducted during the period from 2015 to 2016, the total of the experts participating in a research made 120 people. As selection criteria of experts were used: a field

of activity, experience in the sphere, ability (competence) to assess a situation and to predict its development. The characteristic of expert group are the profile specialists of the branch organizations, administrative workers and public servants, the staff of profile departments of higher educational institutions and scientific research institute, specialists of public organizations. As territorial accessory 8 regions which were distributed on groups with various level of risk ("level of technogenic safety") on the basis of data of the Ministry of Emergency Situations of Russia were selected, regions of the Russian Federation with the maximum and minimum level of technogenic risk were allocated: Adygea, Amur region, Bryansk region, Karachay-Cherkessia, Kirov region, Kostroma region, Krasnodar Krai, Nizhny Novgorod Region, Saratov region, Tver region.

RESULTS AND DISCUSSION

The analysis of expert opinion on probability of emergence of the threats connected with the information emergency situations (IES) shows their following distribution across the analyzed territories (figure 1).

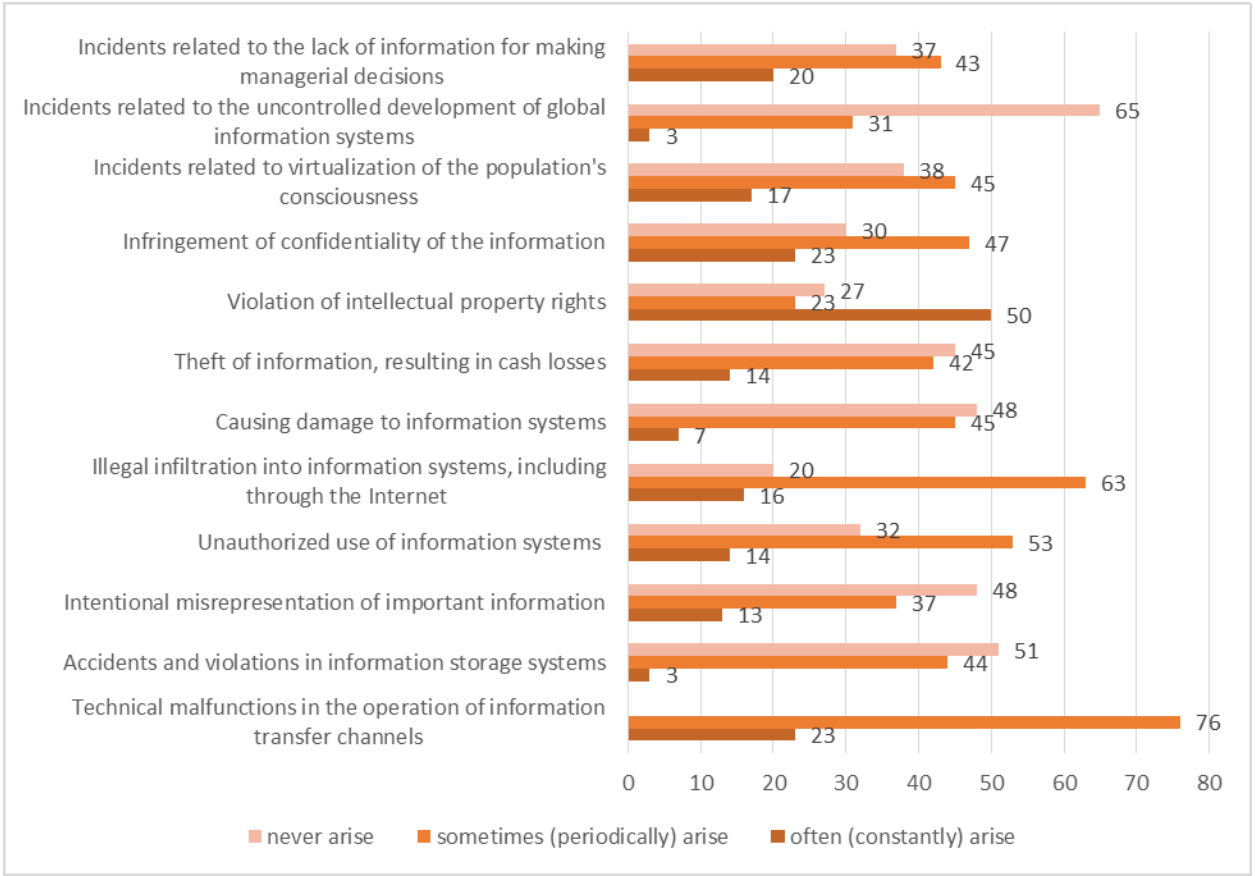

Fig.1. Frequency of emergence of information emergency situations

In a technosphere of regions most often there are dangers and threats connected with violation of intellectual property rights (50%) that reflects current trends both increases in the importance of an intellectual product, and legal literacy of the population. Experts consider the most unusual occurrence in the modern information environment the incidents connected with uncontrollable development of global information systems (so, pointed out 65% of experts lack of such situations).

Calculation of the index of probability of emergence allows ranging information emergency situations (see tab. 2). The three of the most probable ICS includes technical failures in work of communication channels (the index of probability 0.8), violation of intellectual property rights (0.67), illegal penetration into information systems, including by means of the Internet (0.64). The least probable situations, according to experts, are connected with uncontrollable development of global information systems (0.27), with accidents and violations in the systems of information storage (0.37).

Table 2. Ranging of information emergency situations according to the index of probability of their emergence

mergency situations in the information sphere	Index of probability of emergence	Rank
Technical failures in work of communication channels	0.8	1
Accidents and violations in the systems of information storage	0.37	11
Deliberate distortion (concealment/disclosure) of important information	0.42	9
Unauthorized use of information systems	0.54	5
Illegal penetration into information systems, including by means of the Internet (the hacker attacks)	0.64	3
Causing damage to information systems	0.4	10
The theft of information which entailed monetary losses	0.45	8
Violation of intellectual property rights	0.67	2
Violation of confidentiality of information	0.58	4
The incidents connected with virtualization of consciousness of the population	0.5	7
The incidents connected with uncontrollable development of	0.27	12

global information systems		
The incidents connected with deficiency of information for adoption of administrative decisions	0.52	6

As the expert poll showed, in case of ICS of mass informing the population it is practically not carried out (17.2%). Most often communications happen by means of the report of information to direct participants of events (41.4%) or experts (37.9%). Perhaps, such options of dissemination of information are primary because of secondariness of threats of the information plan. Information threats at the moment are the perspective field of problems whose exit to the forefront will be interconnected with a speed of virtualization of mass consciousness and a cybertualization of social and economic processes.

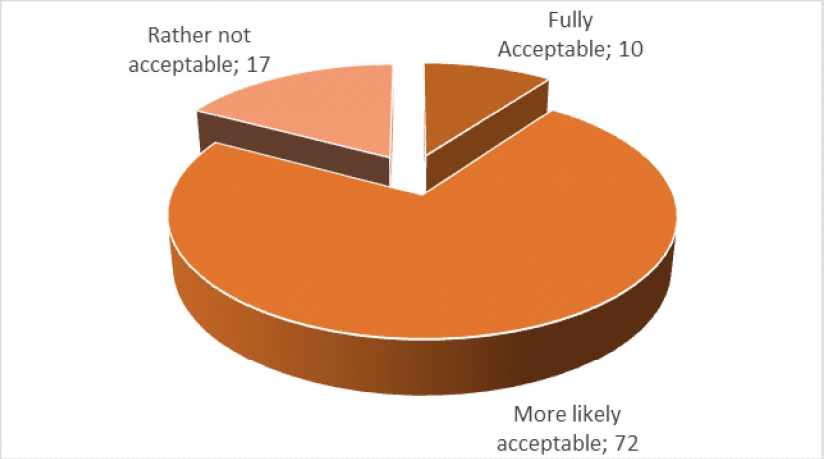

Fig.2. Acceptability of level of information security

Estimating a ratio between the admissible level of information security and economic opportunities of its achievement, experts drew conclusions on the acceptability of the level of information risks existing in regions. So, 72.4% considered it rather acceptable that in total with the group of experts (10.3%) noted its unambiguous acceptability, rather high rate of satisfaction with the level of information security - 82.7% is. 17.2% specified this or that degree of unacceptability of the existing situation in the information sphere of regions (figure 2).

Interface of concrete ICS to the level of their acceptability (for the analysis the situations which are found not less than 1 time a year are taken), showed the following results (figure 3).

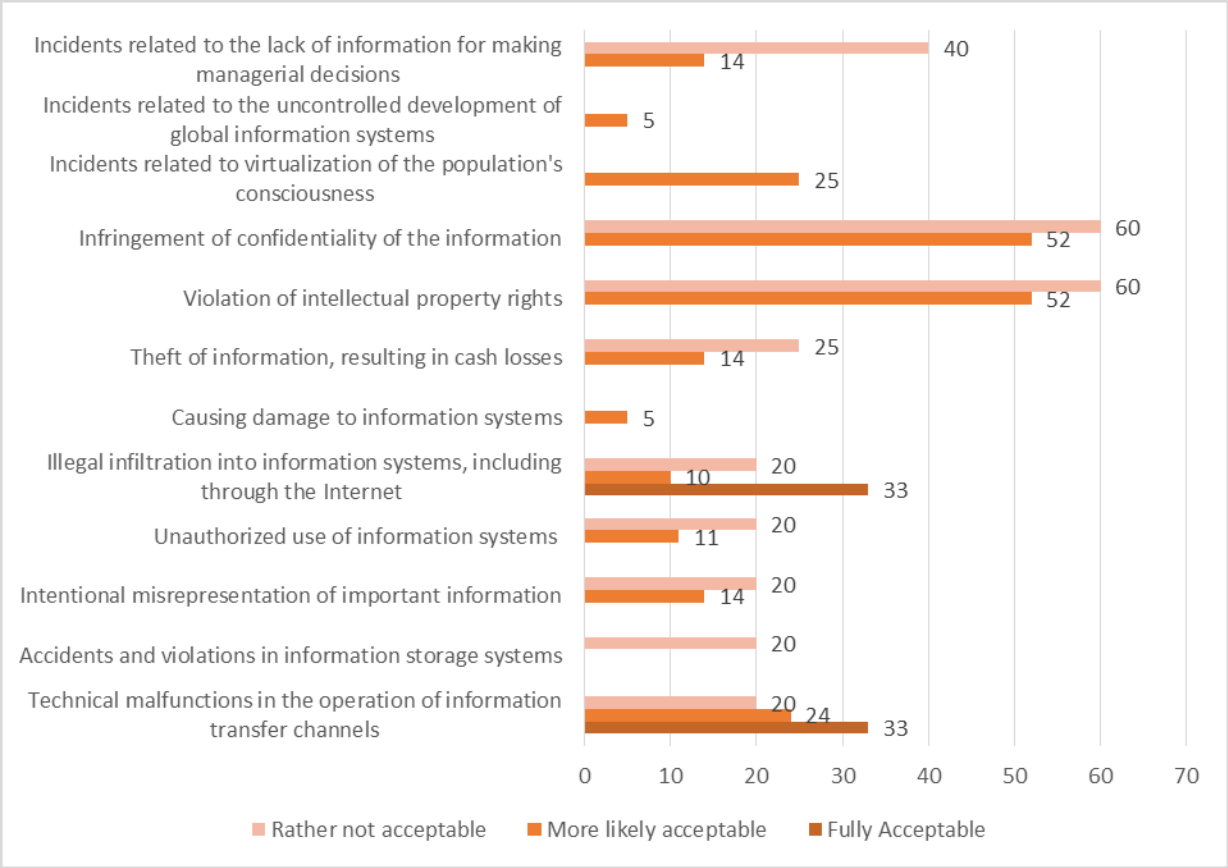

Fig.3. The acceptability of level of information danger to concrete emergency situations in the information sphere

So, 33.3% of experts note the full acceptability from the point of view of information threat of the situations connected with illegal penetration into information systems and with technical failures in work of information systems. Concerning other ICS this or that degree of the acceptability or its absence is observed. More often than others from the point of view of problems the situations connected with violation of confidentiality of information and violation of intellectual property rights (60.0%) are mentioned.

Analyzing presented in the explored regions of the sphere and existence in them of concrete information threats, becomes possible to establish the connected groups branch threat. Groups of problem sheaves allow outlining the "system problems" characteristic of most branches and regions. Information which is already noted earlier violation of confidentiality and violation of intellectual property rights concern those.

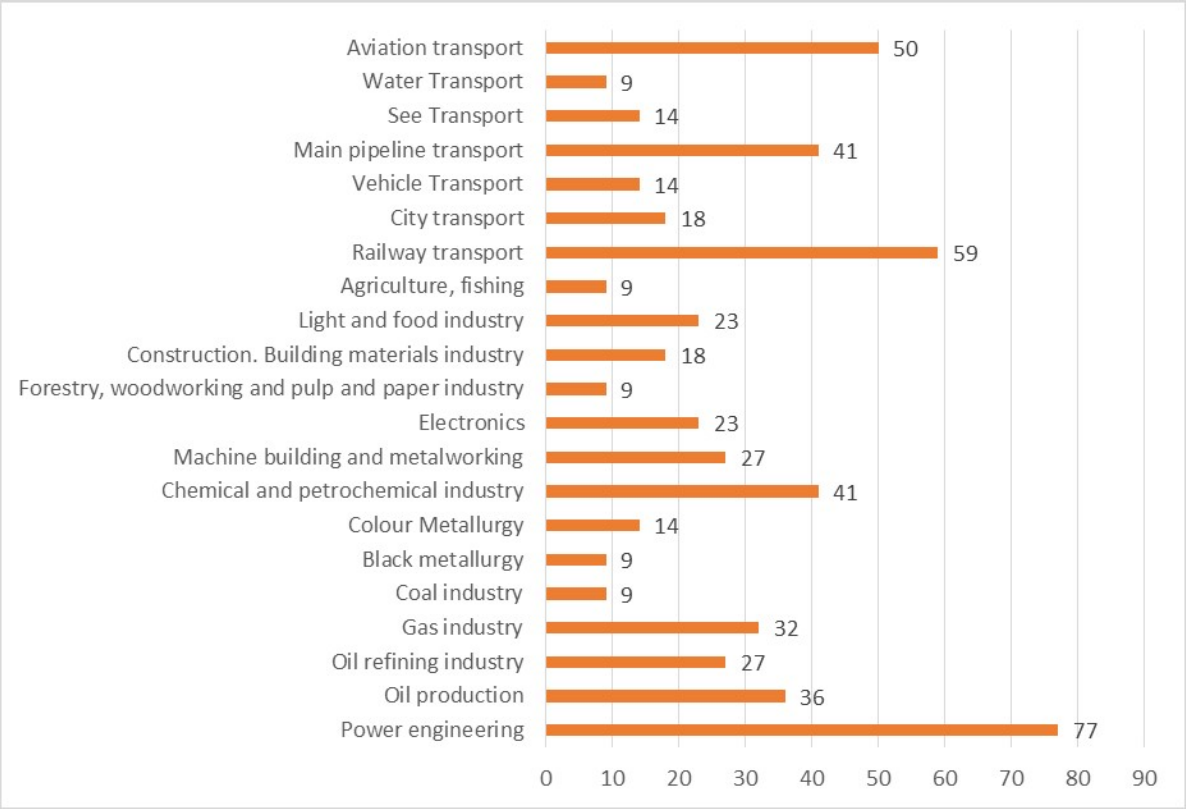

Fig.5. Susceptibility of economic spheres to influence of risk causing information factors

Estimating high extent of influence of information factors on risk causing areas of a technosphere, existence of situations of information risk, experts established that they most of all depend on ICS of branch, connected with power industry (77.30%), the railway and air transportation (59.10% and 50.0% respectively) (figure 5). Less others agriculture and fishery, forestry and wood industry, the inland water transport, ferrous metallurgy and the coal industry depend on ICS (on 9.10% respectively). It is possible to assume that existence or lack of dependence is caused by the level and a stage of informatization of branch. Accepting informatization of one of the leading, global, current trends, it is possible to draw a gnoseological conclusion on causal communications between degree of dependence of branch on the information sphere and level of its progressive development.

Extent of influence of risk causing factors of information locus of the habitat was according to the experts distributed on assessment scale as follows (see tab. 3). All experts the most significant group recognized the factors connected with the person (average assessment on a seven-point scale 5.47) and insufficient attention of the owner to ensuring information security (5.27). Experts defined the smallest influence for the factors connected with the nature and a technosphere (2.50 and 2.63).

Table 3. Assessment of influence of risk causing factors of information locus on emergence of information emergency situations in the habitat of the person

Information risk causing factors	N	Min	Max	Net	Deviation
Connected with change over time of properties of information systems	30	1	7	4.57	1.736
Connected with emergence new, not studied at the time of introduction, properties of information systems	30	1	7	4.67	1.845
Information on security status of the information sphere connected with a shortcoming	30	1	7	4.63	1.712
Human factor	30	1	7	5.47	1.676
Insufficient attention of the owner to ensuring information security	30	2	7	5.27	1.437
Influence of natural factors	30	1	6	2.50	1.526
Sociocultural factors	30	1	7	4.27	1.799
Condition of the legal and legislative base on ensuring information security	30	1	7	3.83	2.001
Influence of a technosphere	30	1	5	2.63	1.129
Shortcomings of management	30	1	7	4.07	1.889

Estimating efficiency of measures and their use in providing an increase in level of information security of regions, experts determined as the least used measures introduction of market mechanisms of regulation infosphere and improvement of methods of management of information risks in the region (by 27.6% respectively) (figure 6).

Most often, as the most effective, measures are noted: strengthening by personnel of services of information security (51.7%) and strengthening of control measures at all stages of development of information product (48.3%). These are often mentioned as not effective measures informing the population on levels and the reasons of information risks (26.7%).

For receiving more reliable data about efficiency of the actions offered to assessment, indexation of data with the subsequent their ranging was made.

In general, ranging measures for the index of efficiency in the territory of the Russian Federation, it is possible to divide them on effective (index 76-100), more effective (51-75), less effective (26-50) and inefficient (negative values and 0-25) (figure 6).

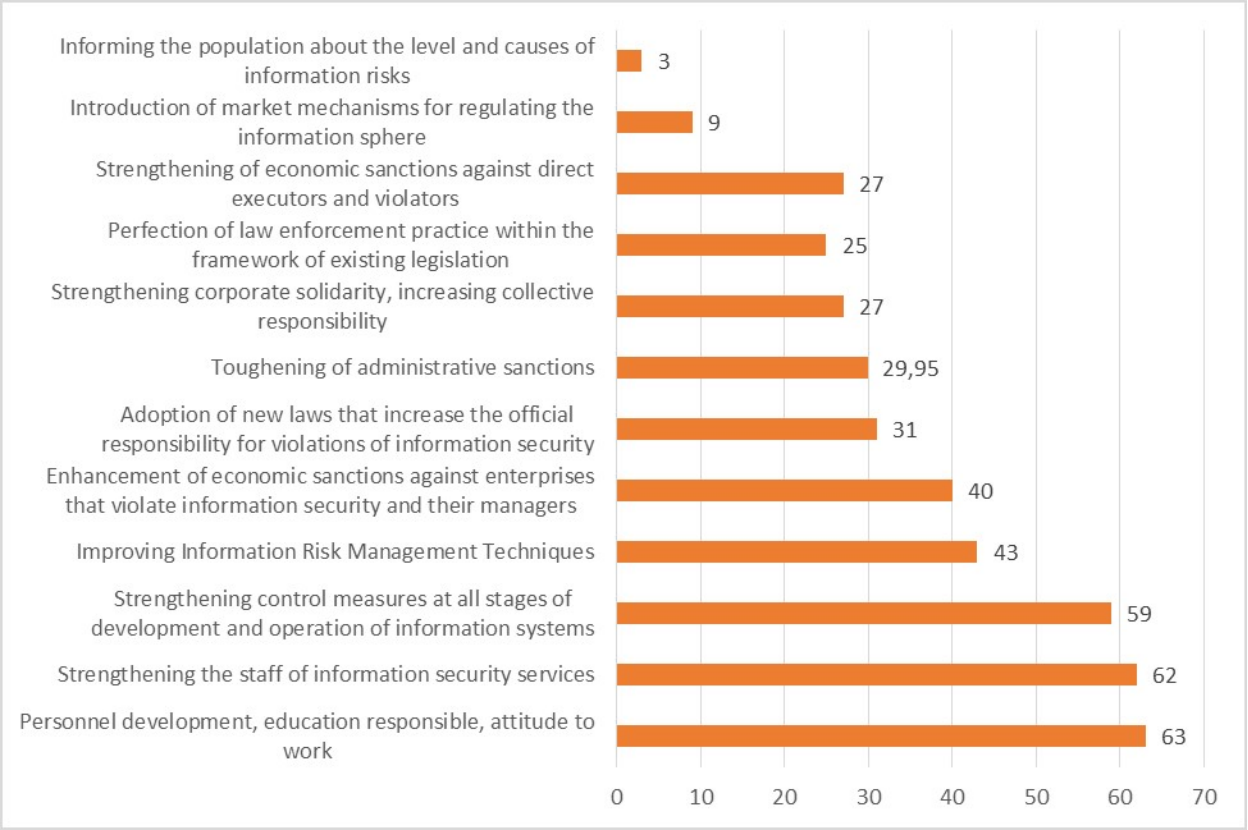

Fig.6. Ranging of measures of ensuring technogenic safety for the index of efficiency

By results of indexation and ranging of measures professional development of personnel, education responsible, the relations to work (index 63.35), strengthening by a personnel of services of information security (62.05), strengthening of control measures at all stages of development and operation of information systems (58.65) can be referred to group of more effective. To the most inefficient measures informing the population on level and the reasons of information risks (3.25), introduction of market mechanisms of regulation of the information sphere can be defined (8.6).

CONCLUSION

Thus, results of the analysis of the conducted research focus our attention that violation of confidentiality of information and infringement of copyright of intellectual property becomes the greatest information danger produced by the information sphere to us. The relevance of the specified threats is confirmed also by vigorous legislative activity not only in Russia, but

also in other countries. This pressing problem, visible with the naked eye to the ordinary user, completely eclipses perspective threats of futurological sense - uncontrollable development of the information sphere and reductions of the communicative capital, consciousness virtualization, emergence of alternative reality connected with it, etc.

Though the information sphere by right holds a dominant position in the habitat of the person, its threats and dangers are not perceived as mass disaster and do not belong to the category of accidents. The information security and its control draw public attention rather from a position of news information, than from a position of a life-defining factor. In general, despite the existing disturbing global trends (information terrorism, information wars, cyber espionage, etc.), experts say that the level of information security in Russia can be characterized as acceptable, with localization of problems in a zone of adoption of administrative decisions and storages of information.

The actions undertaken for leveling of risks and inhibition of threats which can be considered conditionally the most effective belong rather to group of local measures while their globalization does not find reflection in a complex of information security.

When comparing a situation of the information sphere with other components of the habitat (the natural sphere, the sociocultural sphere, a technosphere), the feeling of visible wellbeing and non-materiality of the existing threats is created. But, along with it, there is an understanding of development of information processes. Implementation of futurological forecasts, even in their most favorable option, dictates need of profound diagnostics of risk causing fields of transformation of the information sphere.

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