Technological Revolution and Global-Local Transformations: The View from Russia

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Abstract

Under the influence of current Scientific and technological revolution our planet is rapidly transforming into the sociobiotechnical system (the SBT-system) within which social, biological and technological processes are integrated and mutually transformed by open and overt metabolic processes. The SBT-systems existence makes dichotomy approaches like 'man-nature', 'we-they', etc. obsolescent. The analysis of complexities is needed. The text is the result of the author's fifty-year studies in globalization and risk theory, social ecology, social movements, urbanization, local elite communities, and primary eco-structures and in other complex systems and processes. The main outcome of the study is that consolidated efforts of all kind of sciences and civic activity are now urgently needed. Another conclusion of the above research is a necessity of permanent being of an actor in the midst of events and discussions on global issues. The base of such consolidated efforts is the problem-oriented and interdisciplinary research which in turn requires new organizational forms and experiences researchers. The SBT-systems analysis may be realized only by problem-oriented interdisciplinary studies of the conflict and struggle between two generalized trends: globalization-universalization and localization aimed at protection of 'islands' of natural ecosystems and global SBT-system diversity.

Key words: globalization, institutions, interdisciplinary approach, metabolism, science, struggle, SBT-system, technological revolution

INTRODUCTION

Every technological revolution generates transformations in social order, models of social reproduction and individual and group behavior. But these transformations don't follow in parallel with the changes of a mode of production. It's true in particular for Russia which had experienced twice a doubled revolution in XX century: the technological and social ones. Despite of such civilizational shock burdened with two world wars, some features of Russia as a particular civilization transcends that critical age and still maintains some social and cultural characteristics peculiar to tsarist Russia of the second part of XIX century. Of course, under the closer look some of these traits had been seriously changed while others still alive but in another form. In other words, I'm interested in a set of critical transformations within the global SBT-system accentuating their complex and contradictory character. To comprehend all open and overt transformations and transcends are beyond my power and competence. The aim of the article is to reveal how the transformations generated by the new Technological and scientific revolution are realized in the state of various SBT-systems and comprehended by the humanities.

METHOD

As I wrote earlier, I maintained three approaches: our planet is an unstable and contradictory cosmic phenomenon but it is the wholeness with its own mode of behaviour; the nature, man and its technical devices may play a role of an actor, or an environment, and any researcher

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should follow these actors (Yanitsky, 2016). Following U. Beck (1992, 1999), I consider the global process as an interplay of 'goods' and 'bads', be they big or small, immediate or distant, and produced in the run of local, regional and global conflicts. That is, my starting point is an integrative character of social and technological changes. Not only Bol'shevicks but all other political parties and forces involved considered Russian revolution in the beginning of XX century as a radical turn in all spheres of its social life (Vernadsky, 1995) but only recently it has been shown how complex and contradictory any world critical transformations were (Bartov, 2000; Duffield, 2001; Paris, 2004; Tilly, 2004; Linder, 2006; Keen, 2008; Yanitsky, 2012a). Then, despite of Liberal, Marxist, Anarchist and other competing doctrines a history development has its own regularities. I call it as a self-regulated global social process.

After then, I'm an adherent of 'mounting from abstract to concrete' (K. Marx). In this very text it is a movement from global trends to an urban life regularities, than towards social movements and finally to the transformations of individual and group life forms. A special attention is given to the comparison of 'normal' (routine) situations with critical ones, say, within towns exposed to natural disasters or military operations, being in siege and the like (Yanitsky, 2014a) [1]. Following many Russian and foreign scientists and scholars, I am accustomed to analyze any object of my interest both top-down and bottom-up (or as an outside observer and insider or participant). As I'd been grown in a family of historians, doctors, mathematics and polar researchers their integrated activity in critical situations had been a matter of my special interest which later has been realized in interdisciplinary historical studies (Yanitsky, Krasil'nikow and Romanova, 2016).

Next epistemological point is an issue of modernity. It seems to me that 'modernity vs. postmodernity' analysis is too simple and not fit to very mobile and contradictory character of global life. To make the archetypes is excellent but recently is insufficient. The accent should be made on their processional character coupled with an analysis of their interactions with premodern and transitive types of societies. A combination of overall mobility and sustainability in the frames of global whole is a rather tricky issue.

My family and professional networks allowed me to discuss global issues and their consequences with some leading western sociologists (U. Beck, M. Castells, R. Merton, M. Wieviorka, R. Pahl, A. Touraine) and with eminent Russian scientists and scholars, academicians D. Likhachev, P. Kapitsa, V. Ginzburg, A. Prokhorov, O.J. Schmidt and with many others. The careful study of diaries and memoirs of D. Mendeleev, V. Vernadsky and other Russian outstanding scientists who worked on the margin between social and natural sciences turned rather helpful as well.

Finally, throughout the text I'd used a very lucky chance give me from heaven. From the early childhood and till now I'd been in the midst of events of global scale, in some cases as a pupil or an observer, in others as a participant or discussant. But all my experience as a student, an urban planner or a sociologist convinced me that the multi-sided and multi-level approaches gave a unique chance to embrace globalization process as a complex whole [2; 3]. Let me to underscore that a presence everywhere is impossible and not needed. In a rather interdepended and compressed world to have a skill to recognize in particular local case a certain global trend and vice versa is well enough [4; 5]. In other words, the above mention combination of top-down and bottom-up analysis is absolutely necessary. In particular, I'm share the principle of two-side analysis: within the global SBT-system there are two contradictory collective actors, that is, network-structured and territorially-structured. This

opposition cannot be reduced to the struggle of the transnationals and nation-states. In reality, there are two sides of the same process: the all-embracing and all-penetrating flows of resources, information, people, etc. and the functioning of territorially-based complex systems. Or, more exactly, ecosystems are bound by various metabolic processes. The metabolic analysis is one more important principle of the studies of the SBT-systems. Any actors within them not only 'interact' or 'communicate' but transform each other in many ways. The analysis of metabolic transformations has to be an inseparable moment in any form of humanitarian investigation (Yanitsky, 2013).

The following text is relied upon my fifty-year studies in risk theory, social ecology, grassroots and social movements and their networks, urbanization processes, local elite communities, primary eco-structures (Yanitsky, 2012), models of individual behavior and on other complex systems and processes. These long-term studies of the above complex phenomena in the USSR/Russia and in Europe were inseparable from the theoretical studies of major trends in global-local processes. Every following subject matter needed a particular methods and techniques for field-research. Usually, I'd used the methods which allowed me to embrace an issue in question from a variety of viewpoints. But in general I'm a follower of basic principles of urban studies developed by the fathers of the Chicago school of human ecology. As concerns to empirical base of my works, I preferred the methods of long-term case-studies, oral histories and in-depth interviews. The main corps of empirical data of my field-research is in my archive (Yanitsky, 2014).

GLOBAL TRENDS

The screening of accessible sociological literature and books of eminent theorists of globalization (Bauman, 2001, 2004, 2011, 2011a, 2011b; Beck, 1992, 1999; Castells, 1996, 2000; Giddens, 1992; Lash, Szerszinski and Wynne, 1996; Prigogine and Stengers, 1984; Urry, 2008; Waters, 1995) as well as of a set of leading international journals as International Sociology and Current Sociology gave the following results. First, the issue of relationships between analysis of world dynamic and the state of technical, natural and social sciences as particular social institutions is still on the periphery of research of modernity and post modernity. Even the very process of transformation of the biosphere into the SBT-system is not still in the focus of any of above disciplines. Therefore, I'd developed the concept of the SBT-system which is qualitatively differs from existing versions of man-nature relationships (Yanitsky, 2016). Second, as to the new technological revolution, it challenges the science as a social institution at large. For example, we are witnessing a growing gap between all-embracing, rapidly changing and highly-risky globalization process and monodisciplinary development of majority of sciences; the globalization is developing both in breadth and depth, while a majority disciplines are studying a separate parts and processes of this whole. Third, the emergence of such highly complex glocal actor with twists and unintended consequences urges social and natural scientists to reconsider critically habitual dichotomy approaches like 'man—nature', 'rural—urban', 'we—they' which don't fit to integrative character of globalization processes. Four, the global and highly diversified metabolic processes cannot be reduced to very simplified schemes of nature turnover taken from a primer text-book. The biochemical nature of this turnover must be carefully investigated. Five, the above mentioned imbalance may be overcome by problem-oriented and interdisciplinary researches carried out both top-down and bottom-up. Six, there is growing gap between current concepts and field-researches in humanities focussed on relatively stable structures and relationships and a highly complex, nonlinear and risky globalization process. Seven, this double gap is only to overcome if an overall institutional structure will be gradually transformed by the concert of all parties involved. Eight and the most important, a digital communication radically

transforms (or even forces out) the habitual 'letter language'; today global community lives in two worlds: material and virtual ones. Guttenberg-based global communication is in danger. Summing up, it seems to me that neither sciences nor humanities are paying due attention to fundamental transformations in global life and its comprehension generated by ongoing technological revolution.

WHY A CITY?

First, from the ancient times the cities have been an intersection of qualitatively different networks and flows (people, goods, arms, information, etc.). It means that the variety of actors have to co-exist, interact and understand each other. Gradually, cities turned into communication hubs (Meier, 1965; Yanitsky, 1970, 1982). Second, cities have been connected with rather remote parts of world from which they accumulate, store, process and use a great variety of goods, materials and substances. This processes stimulated the development of skills and sciences which were forced to learn or/and develop the methods of management of various branches of production. Third, in time a process of natural differentiation of urban zones (productive, living, recreation) turned into a problem of mutual understanding: how to use a restricted urban area the most rationally and at the same time with minimum risks. A rational planning and the safety of urban residents are still the very acute problems. Fourthly, for the reason of spatial concentration of a variety of urban life cells and their infrastructures the risks of cascading effects of urban accidents were growing. Fifthly, under modern hybrid wars the cities (with their population) and infrastructures are the most vulnerable 'points' of global community. As current conflict in Syria shows, urban residents are often used as a human shield, that is, as a kind of defensive weapon. But even in peaceful times modern cities play the role of transition hubs in which a common language understandable for all 'passengers' is urgently needed. Sixthly, modern cities are the centers of science and education in which the carriers of particular knowledge or/and skill have to interact and enrich each other. In the remote past the science represents an inseparable whole. Then, a long period of sciences differentiation has begun. Now we are again needed in an integrated knowledge about extremely complex world in which we live and work. The need in problem-oriented and interdisciplinary means of its comprehension is conditioned by the integrated character of this world. As a result, the mode of teaching is quickly shifting from universities and other stationary institutions towards permanent and distant form of learning (Bauman, 2007). Eighthly, as recent researches of globalization shows (Global Risk Report, 2015), old maxima 'All connected with all, and all somewhere find oneself' is still very timely. It's rather indicative that the economists and not the sociologists draw our attention to this all-embracing interdependence again. In sum, a modern city is an experimental field for the study of metabolic processes between qualitatively different spheres of life: social, biological, and technological ones. Therefore, the very term of 'urban planning' is a residual of obsolescent division of sciences, and their separation from a rather complicated process of a city's establishment, its growth and maturing. Anyhow, a modern 'urban planning' is not a spatial planning at all but it is a complex and interactive process which must fit to metabolic and network structures of modern cities.

ENVIRONMENTAL AND OTHER SOCIAL MOVEMENTS

In comparison with such institutions as the international organizations, transnationals and nation-states, social movements and other civic organizations are much more flexible and mobile. My 25-year study of Russian environmental movement (the REM) and its comparisons with European ones led me to the following conclusions. First, the REM had been initiated and created in early 1960s by joint efforts of academics and students. These academics educated in

pre-revolutionary years or just after them had transmitted to the students skills and knowledge acquired in communication with high-level professionals (pathfinders, travelers, scientists). Second, the REM has been self-organized but under the patronage of academic curators or already established civic organizations like the All-Russian society for nature protection. Therefore, the REM has been called as the Druzhina movement (the Nature protection Corp, in English). Thirdly, from the very beginning of its activity the students had been faced with rather diverse social milieu ranging from poachers and till various kinds of local and regional administration and bureaucracy. In my view, it is the best mode of interdisciplinary teaching (i.e. learning by doing). The diversified natural and social environment urges them to diversify the Druzhina's activity. Simultaneously, such activity not only generated its various branches (flora, fauna, struggle with poachers, propaganda, etc.) but taught activists to be experienced, 'multi-handed.' Fourthly, the very combination of cameral work and civic activity appeared extremely fruitful. This activity taught them to be self-sustained and responsible. Fifthly, relatively high level of the IQ of majority of activists coupled with diversified university's professional milieu allowed them to be first in the Soviet Union who mastered the network communication between the Druzhinas in remote parts of the country. The network ties multiply the efficiency of their activity. A particular example: Evgeni Simonov, one of the youngest leaders of the REM tamed its activity serving in the armed forces. Sixthly, the very existence of the REM has a double effect. On the one hand, it served as an example how to be civic activist under conditions of Soviet regime. On the other hand, being satiated in large cities the REM fulfilled as adaptive mechanism to urban way of life for the students from rural areas and small settlements. Seventhly, many of the REM ex-members stated that the Druzhina's activity not only educated them but shaped as the personalities. My later observations showed the almost all the Druzhina's activists found their place in a life especially during the hard years of perestroika.

RESEARCH PROJECTS

Such projects are a widespread and habitual form of the environmental and interdisciplinary approach. The environmental because any research project is a product of a given scientific, social and other conditions. Then, any research team is included into a particular social and cultural milieu as well as because a certain project will be then 'inserted' into a particular natural, social or technical environment. After then, the outcome of the project will go through a set of professional and civic milieus, professional and social. Finally, for the reason of that a particular SBT-construction (as an outcome of the research project) will then develop together with changing a local and global milieu. As to interdisciplinary approach, it is indispensable feature of any research, technological or political project. A combinatorics is strategical principle of any project of our times.

Let's return to the city issue. The modern urban planning has to meet at least three criteria: the efficiency, comfort (i.e. wellbeing), and safety. The underpinnings of these principles are a metabolic, network and interactive character of functioning of any SBT-system. In turn, the efficiency means the resource saving, recycling of wastes, diversity maintenance, global-local, and adaptive-developmental aims balances. An issue of safety includes a permanent monitoring of a project implementation, regular control and timely repairing, independent control on city functioning, and so on and so force. The wellbeing part implies inclusion-exclusion balance, learning by doing, public participation, trust and justice, and a local-global communication and exchange.

But to my mind, even in the run of a research project the very process of long-term communication between various specialists creates a vide space for interdisciplinary

communication, mutual understanding and for the development of methods of translation from one professional language to another one. It's not an abstract idea but a practical outcome gained from my fifteen years participation in the UNESCO's 'Man and the Biosphere' program. This method of cross-professional fertilization had been labeled as the 'full-time integrating method'. The principles and techniques of this method had been partially realized in the international research project titled 'Cities of Europe: The Public's role in shaping the urban environment' (Deelstra and Yanitsky, 1991). Later on, this method has been tested and modified in the run of a set national and international research projects (Yanitsky, 2000, 2002). In mid2000s I've carried out the research project aimed at the revealing of the degree of mutual understanding of various participants at the beginning and the end of a particular research project. Three regularities had become obvious. First, the longer is the project the better understanding between its participants. Second, the longer is the project the more its participants were interested in its cumulative result. Third, after the project had been ended its participants tried to apply the acquired interdisciplinary methods in their particular disciplines and methods of teaching. All in all, the rules of constructing, growth and further maintenance of a particular SBT-system include the application of the above mentioned methods, permanent monitoring and control of the SBT-system construction in situ, etc. The rescue and rehabilitation forces should be trained and organized in accordance of the above principles as well.

INTERDISCIPLINARY COMMUNICATION BEYOND THE PROFESSIONAL LIMITS

Two preliminary remarks are appropriate here. One, despite my international experience this kind of communication is mainly peculiar to Russian intelligentsia inclined to datcha's way of life (a country-cottage). The other, what is stated below is my long-term personal experience without any particular methodology and strict technique. But I'm convinced that simple participant observations or even free talks without any aim formulated in advance give much more fruitful results than rigidly-structured interview. More than that, sometimes such talks resulted in new ideas or hypotheses because these talks are fit to nonlinear character of the world SBT-system development. Territorially, my long-term observations had been implemented at two 'elite' datcha settlements, Nikolina Gora and Novo-Dar'ino, and at two rest houses (or sanatoriums), namely Uzkoe and Suchanovo. All they were situated in Moscow suburbs. The total duration of such insider observations and contacts ranges from 15 to 30 years. In some cases each contact happened every day during tree-four months, in others it happened once a week during a year or two.

I can't to range the following conclusions by their importance for particular persons or disciplines. But I'm convinced that the very diversity of one-to-one communication was very attractive as such for all of them and it's my first point. The majority of so-called respondents had been professionally 'one-dimension man' by definition. And their closeness within mono-disciplinary activity generates a need for diversified communication. Even if in the run of their professional activity they resolved some complex problem, they had often no time to reflect. The second one is rather curious: it turned that diverse professionals were interested in each other despite their mutual alienation. The motives of such interest were various: from simple curiosity till actual cognitive interest, from bowing acquaintance to the wish to convince that 'my discipline is the most important.' Sometimes, a human sympathy took over professional ambitions. The third thesis illustrates a reverse picture. Once, in Uzkoe sanatorium dinner room to our purely humanitarian talks approached academician Sergei Nepobedimyi, one of the key figures in Russian military defense systems, and said: 'How interesting all what you are discussing!' The fourthly point is rather simple but important. In free atmosphere of such

gatherings the youth have an opportunity to talk with leading professionals beyond the frames of university of office order. I felt it deeply on myself having the talks with academicians V. Ginzburg and A. Prokchrov, two Russian Noble laureates. More than that, I state that such sites for informal communication are the places for creative activity of all strata of Russian intellectuals. The fiffhly point says that some leading Russian scientists come to such rest houses not only for medical treatment but for getting necessary information from the first hands because the patients came from all sides of Russia. Once again, every 'one-dimension' professional is needed in diversified sources of such information because in that cases he or she may to clarify the answers, put additional questions, to ask his vis-à-vis any questions they need, etc. A distanced communication and its digitalization have substantial shortages. Besides, Russians are most accustomed to one-to-one talks, and emotional coloring of such talks is important to intellectuals. Sixthly, free and easy talk disposes to reflection beyond professional frames and limits. Unintended questions of interlocutors stimulate creative thinking. Sometimes 'cross-cultural' communication leads to actual breakthroughs in the realm of theorizing. Such talks stimulate associative thinking and mobilize 'sleeping reserves' of human memory. Seventhly, it is indicative that in the course of such free and easy talks the conversation of interlocutors shifted from self-presentation towards general issues of globalization, in particular towards the issue of impact of total digitalization and computer-modelling on the very mode both of theorizing and everyday behavior of rank-and-file people. Finally, comparing such free talks with public disputes I'd underlie that the former are much more fruitful than the latter because in the first case there is always a possibility to continue the talks once again whereas in the second the discussants strive to take over their opponents.

THE END OF 'COCOON OF THE BASIC TRUST' (A. GIDDENS)

For centuries, a family and its immediate milieu were the basement of organizational hierarchy of a society. Any forms of mobility had been allowed within a stable social order only. The maintenance of sustainability, its protection, strengthening and expansion were the guiding principles of existence of diverse societies and civilizations. Accordingly, the dichotomy maxima of thinking prevailed. One principled point: there is no any 'hierarchy' of ongoing changes generated by current Scientific and technological revolution: all above mentioned global trends exert an impact on micro-processes, that is, on an individual, his family, mode of adaptation to entirely new environment, and of course on behavioral stereotypes. So the following succession of points and the very principle of their subdivisions are very conditional.

First, the cocoon of an individual's basic thrust and all organizational hierarchy of pre-global societies are rapidly destroying and substituting by direct inclusion of a person into unknown the SBT-system. Surely, many intermediate organizations and institutions still exist but in the end they all are subjected to regularities of global SBT-system behavior. A closed, familiar and spatially small living environment (small Motherland) is quickly replaced by unlimited and alienated living space. Second, it means that existing balance of 'inclusion—exclusion' is disturbing: the inclusion into a global SBT-system is prevailing over exclusion. Usually an individual cannot manage by himself with such sharp change. Z. Bauman presented a 'global' man as a person in sports shoes with a cell-phone in the hand (Bauman, 2001). Third, in order to prevent full distraction of such cocoon, the global political elite use the interdisciplinary teams for the invention of an antidote. It has emerged in the form of all-embracing mass media network which produces the 'proper' models of individualized behavior for each following political season. It should be mentioned that it is 'packed' models which contains a set of life-styles. The problem is that the behavior of global SBT-system is very hard to predict. Fourthly, the reverse side of the same coin is that the existing socialization institutions relied upon on a set of monodisciplinary principles are not fit to integrative and nonlinear globalization process.

Such gap generates strong cognitive dissonance and gives way to asocial forms of individual and group behavior. Fifthly, the phenomenon of inversion of space, the breaking of delimitations between 'me and they', 'close and remote', 'friends and adversaries' seriously disoriented an individual in a social space. There are two major ways to overcome it. The former is to be maximally included into a virtual world. The most typical example of it is internet-gamer. The latter is to be maximally excluded by means, for example, of downshifting or returning into the nature and becoming free-will Green exiles. Sixthly, the relationships between the past, present and future have changed as well. In pre-global times a certain balance between these three realms of human existence has maintained. The past served as a model for the present, and the future was seen as a continuation of already existing trends. That is these three realms of human existence had perceived as more or less similar. Nowadays, the state of affairs is quite different. The key notion is permanently movable present. Using the Bauman's term, it is a 'liquid modernity' (Bauman, 2001) or the all-embracing 'modernities', as J. Urry (2000, 2008) called it. Of course, a future is matter but nobody can predict the state of global SBT-system even for several years ahead. Seventhly, a rapid development of information technologies creates quickly widening gap between the children and the elders. Today, the 'teachers of life' are not the elders and school but social networks and street-gungs. This gap is aggravated for the reason of outdate principles of teaching. At school the children are teaching by subjects (themes, topics) while the life teaches pupils by emerging problems, taken together and at once. A teaching process must fit to very complex and liquid character of postmodernity. Eighthly, an all-penetrating character of global harms and risks seriously questioned both the matter and notion of privacy. Recently, there are no absolute safe places, there are more or less safe only, and the level of a man's safeguard has to be under strict and permanent control.

Ninthly, a nonlinearity of the global SBT-system evolution doesn't matter that I'm interested in current global trend only. There is of a no less important global issue: the clash of civilizations. This theme is beyond my capacities and the limits of the article. Nevertheless, some comments should be made. Despite of close interconnections of all social actors of the world, a diversity of civilizations is still exists. To my mind, this diversity has a contradictory character. On the one hand, the capitalist system is globally dominating. But on the other hand, for the reason of historical, economic, cultural and landscape peculiarities there are other types of civilization (as parts of the global SBT-system or as the non-systemic units) that still exist with their own social and cultural regularities.

CONCLUSIONS

First, the globalization processes guided by the Third scientific and technological revolution is a prevailing feature of our times. But actually there is a tough struggle between two adversarial trends: the universalization one and the resistance to it on the side of territorially-based forms on nature and human life. Global network-based transnationals act irrespectively from any types of locally-based ecosystems whereas the latter resist to the total universalization.

Second, this struggle is Janus-like because it simultaneously is a promoter and fertilizer of the development of scientific and technological innovations. The matter is that any such innovation may be used for making 'good' and 'bad'. That is, scientific and technological revolution is an instrument in the hands of global and nation-based stakeholders.

Thirdly, our planet is rapidly turning into global SBT-system with still unknown regularities. The SBT-system of any scale demonstrates nonlinear trajectories of development. Each of such

system has its own carrying capacity, and if it to overcome a certain threshold, it turns from risk-absorber into risk-producer. The SBT-systems are bound by various metabolic processes. Therefore, the achievement of their sustainability is an open question.

Fourthly, a widespread of 'smart machines' coupled with the growing potential of mass consciousness manipulation by media is potentially a doubled risk. On the one hand, a man more and more subjected to digitalized world with its own codes of behavior. On the other hand, the media and social networks demobilize people. Within such highly computerized and codified world some people are losing the ability to creative work and their brain becomes lazy.

Fifthly, as modern cities are still the most critical SBT-systems they are the fields of tough struggle between transnational flows and networks and territorially-based SBT-systems. That is why the cities have been chosen as an experimental field for the study of metabolic processes between qualitatively and temporally different spheres of life: social, biological, and technological ones.

Sixthly, the most diversified, network-structured and mobile collective actors are the civic initiatives and social movements. They are simultaneously the first that react to the global SBT-changes and call for actions aimed at transformations of institutional structures of a society. Besides, these actors are those who may give information about territorially-based SBT-systems at first hands.

Seventhly, the problem-oriented interdisciplinary research projects are one of the best ways for mutual understanding and overcoming the institutional barriers. However, in order to correspond to the overall globalization process such projects have to be long-term and to combine top-down and bottom-up approaches. A combinatorics is another strategic principle of any research project of our times.

Eighthly, the research projects and other institutional forms of professional works are insufficient. A communication of researches beyond the professional limits is necessary. It stimulates cross-professional fertilization, promotes the development interdisciplinary contacts, and mobilizes a creative thinking beyond his/her professional interests. The current public discussion concerning the consequences of digitalization of human discourse is rather indicative.

Ninthly, the privacy and individual data protection is in danger. More than that, the phenomenon of inversion of space, the breaking of delimitations between 'me and they', 'close and remote', 'friends and adversaries' seriously disoriented an individual in the global social space. The individual's' involvement into global networks, his/her growing mobility undermines a person's identification both 'here and now' and in the past. The phenomenon of a Motherland is also threatening.

Finally, the view on the global dynamics from the lenses of the Scientific and technological revolution is important but not sufficient. A negative reaction of nation-states on the one-sided speeding-up globalization process is growing. But is it an appeal for more balanced local-global development or a new form of clash of civilization – it is an open question.

NOTES

1. From the viewpoint of interdisciplinary approach the analysis of any critical cases (natural and man-made disasters, wars) has been rather helpful because in such cases the disciplinary and bureaucratic barriers were usually much lower.

2. During my life-span I'd returned many times to the case of the navigation and crash of the Soviet ice-breaker Chelyuskin in the 1933-34s. It had been a unique and successful case of national-international rescue operation. Later on, I'd a chance to have one-to-one talks with some of participants of that expedition (details see in: Yanitsky et al., 2016).

3. Since my uncle was a mathematician and polar researcher (later on, one of the creators of a theory of the Earth emergence) and my father was a geopolitical geographer during my youth I'd been in the midst of talks on global trends and events. The WWII experience and its international consequences widely discussed by Soviet schoolchildren and students. Another fruitful experience I'd got during the WWII in the hospital in the city of Kazan' in 1941-43 years and in 1950s in the talks with the ex-service men of the WWII. The insiders' views of such critical emergences were rather fruitful. The voluminous belles-lettres written by ex-service men turned writers were of a no less importance.

4. In the mid1950s a world-known Brazilian architect Oskar Niemeyer visited the Soviet Union, and my friend and I had lucky chance to meet him. It had been absolutely unbelievable that he not only remembered us but began to supply us with excellent photos of his works in Brasilia capital. In 1957, the XVI World Festival of Youth and Students had been conducted in Moscow, and I'd another chance to have extended informal talks with the collaborators of Niemeyer as well as with many other participants of the Festival. As a result, the book 'Oskar Niemeyer' written by V. Hait and me appeared on the shelves in 1963.

5. The diaries and letters of my grandfather, a surgeon and sanitary inspector F. Yanitsky, from three theatres of war operations (Russian-Turkish, 1877-78s, Russian-Japan, 1904-05s, and the WWI) gave me very important time dimension as well as an insider's evidences of some global processes.

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