Cyber physical universe: An ontological shift[1]

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In the beginning of March 2017 we have known that biggest russian internet companies and communication operators (Rostelecom, Megafon, MTS, Vympelcom, Mail.ru Group, Yandex) creating self-regulated organization "Big Data Association". The Association will be open for another market agents like banks and insurance companies[2]. Main aim of this alliance is to react to "big data hyper-regulation" from russian governmental IT-regulators. A question about balance between big companies responsible regulation and Big Brother legislative initiatives[3] is now open and actual in context of russian history and current macroeconomic model. And Data Turn problem is in many ways a problem of new technoevolutionary forms of collective subjects, collective corporealities. We have to comprehend not only social and economic russian "big data cases" within world trends. But take attention to avantgarde, futuristic, even crazy projects. Like 2045[4] mind data rebooting to artificial brain or near-officially accepted in governmental National Technology Initiative[5] NeuroNet[6] project.

In 2006, Clive Humby probably one of the first, uttered the phrase, very popular now: "Big Data is new Oil". In Russia, we have sad experience both with "natural resources economy" and with totalitarian attitude to Human life's as System resources. So now we need a new actually smart products economy, digital valeology, media culture, data ethics, communication axiology... to create more humane and sustainable society.

Lets begin from the question: what a possible evolutionary meanings of data streams increasing both in quantitative and qualitative senses? From clarifying paths of "data as communication" socio-cybernetic changes in context of complex systems emerging developing we will try to explicit ethical principles in different points: anthropological, from subject-participant of systems and networks, and socio-philosophical, from subject (including collective one), who try to built and/or to control systems and networks.

Data overflow is matter-of-course process in our time of rapidly spreading of Internet of Things[7], M2M (machine to machine) cyberphysical interobjective communications. Also Artificial Intelligence intuitively pretend to play a main role of that communicative complexity management.

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[2] http://www.kommersant.ru/doc/3260507 (accessed 8/05/2017)

[3] https://rbth.com/news/2017/03/28/proposed-big-data-law-will-empower-russians-in-the-digital-realm_729263 (accessed 8/05/2017)

[4] http://2045.com/

[5] Jeff Schubert. Russia's "National Technology Initiative" or "Waiting for the High-Tech Tooth-Fairy"! Moscow, RANEPA 28 September 2016 P.4 http://russianeconomicreform.ru/wp-content/uploads/2017/01/NTI-ENGLISH-VERSION.pdf (accessed 8/05/2017)

[6]   Vadim Chekletsov, Pavel. Luksha, Vladimir. Arshinov: IoT & Neuronet: ethical issues of intersubjective and interobjective hyperconnectivity. EMCSR, BCSSS, Vienna, 2014, P.299-301

[7] Its interesting, that first specialized IoT-thinktank (Russian IoT-center, http://internetofthings.ru/) was established by Russiam Academy of Sciences Institute of Philosophy, department of science and technology interdisciplinary problems. And first IoT-monography was also philosophical work (Chekletsov V. Sense of the Planet. Internet of things and next technorevolution. Moscow 2013)

We will give some conclusions of Russian IoT-center recent STS-studies overviews. In Russian system of "corporative governmental capitalism" complex schemes of transactions between fictional companies and funds traditionally signed as "corruption". However, such a beneficiary actions not "corrupt" system, but create system with different qualities: maybe more centralized Leviathan or suchlike. Lets rethink in context of AI, uberization, blockchain smartcontracts etc.- such a complex corporate structures, where an executive director or chief accountant can be both a separate companies. Decisions, transactions and actions in similar collective bodies are strongly dissipated and can be managed by semi-self-organized AI, self-educating processes of (for example) neuronetworks flexible algorithms. So we see appearing (sometimes for very short time) new hybrid human/machine systems and networks. What are common demands of anthropo-subject, wandering between different systems and networks and subject, who pretend for social architect role- for adaptation in such a new cyberphysical sociomateriality?

Data actualization:

Data visualization and other actions aimed to form attention parameter are *now-actions,* and have non-linear connections with *past* data. Collective subjects, who have more strong possibilities for data collection or processing have to clarify *future* intentions. Leastwise, individual subject have to have critical culture for data-manipulations.

ID-*entity*:
a. Consistency, correspondence and verification of physical objects, subjects and systems to its virtual models (representations, avatars etc.)
b. Due to dynamic character of contemporary socio-technical systems, they have to have separate ID for their functional parts
c. Persons have a right to have your own separate decentralized ID, not connected with none of existed systems[8]

Interfaces:
a. Person have to be able to choose system or network with access to adequate and relevant description of his future role and position within system. And role and position of whole system for another "outer" systems
b. Person have a right and be able to change interface of interaction with system (right for reinterpretation)
c. Person have a right to leave system *regardless* system stability.

Personal Data streams
(all actions including social, bodily and mental activities) have to be of personal ownership. Technosocial usage of this data have to be possible by decentralized (blockchain or other) smartcontract between Subject and System. And **initial** personal datacost have to be human persons **basic income.** That is one of necessary requirements of Industry 4.0 challenge.

So new communication technologies rapidly and profoundly changing society and culture. The challenge of philosophical analysis in the information age (M.Castells), the era of global transformation (E.Laszlo), the necessity of "thinking of complexity in a complex world" (E.Morin), is not only "after the fact" -reflection, analyzing the meaning and evolution trends of already developed technologies. But - in the direct participation in the current R&D-communications, the active contingent (Q.Meillassoux) inclusion in the Actor-Network (B.Latour) relations,

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8 Obligatory that ID have to be complex (based on several geopositional, biodata, behaviour pattern recognition, social networks inclusion information etc). Even DNA verification is not enough in CRISPR (gene redactor) era. Unique Person is a unique quantum superposition. As a Duns Scotus "Haecceity", "haecceitas", "thisness". Decentralization (with blockchain technology or other) assumes personal providing with necessary tech memory capacity.

transforming our predominantly physical world in a new level hybrid cyberphysical universe.

Understanding the importance of research of modern cyberphysical systems in terms of complexity science recently emphasized by professor K.Mainzer, well-known expert in the field of complexity Studies. It is necessary to assess which of the technological trends which are at the very beginning of its development, have the deepest ontological, epistemological and anthropological transformational potential. To which of the socio-technical processes humanities must now turn its critical gaze? From a multidimensional landscape of nano-, bio-, information and cognitive techno-metamorphoses, in our opinion, now we should note the socio-anthropological dimensions of convergence of blockchain technologies, augmented reality (AR), the artificial intelligence with the umbrella project of Internet of Things (IoT), especially- in the development of the Industrial Internet program (Industry 4.0). Industry 4.0 in our point of view is the integrative megaproject of objectified cyberreality.

2016 year was a milestone for the global trend of interpenetration of the physical and virtual worlds. This progressive "mixing" in cyber-reality observed in the last decade, with the development of AR- and IoT-technologies. However, in the not far past days, Internet of Things and augmented reality technologies were not widespread (not have influence to social dynamics and culture as other already well common technologies "mixing" of the digital and "real" landscape: for example, GPS, maps, Mobile Internet). In 2016 we saw the first truly massive success of the application of augmented reality Pokemon Go; and it was just a crazy explosion of popularity. After that, most experts expect a qualitatively new stage of development of AR, and related social and cultural transformation.

Also, in 2016 year it became clear that blockchain and smartcontracts are "missing link" for adequate communication in the world of Internet of Things and for the platform complex cyberphysical industrial systems 4.0.

Note that the emergent technologies of Industry 4.0, the Internet of Things, Blokchain, AI, considered in our research not just as a tool for the creation of smart things, smart homes, cities and factories. But it is also - as the main contenders for the processing of new forms of corporal sociomateriality: Techno-world continuation in the history of the formation of biological evolution in the first coding mechanisms of reproduction, translation and regulation of genetic codes. Further-development of signs communications on the basis of neural activity. And hereinafter continuing evolution in the technologies of cultural forms of information being exokortex (extended mind), algorithms, values and meanings that organize our society and transform the face of our planet.

In the Industry 4.0 blockchain and automatic smartcontracts will help in the management of the complexity of inter-machine, inter-object communications, the growth of transactions between counterparties through transparent fixed by the time offsets, establish smart supply chains, intelligent services and etc.

The anthropological and socio-philosophical sense of the above technologies, coupled with the development of artificial intelligence is the formation of new forms of intersubjective, subject-object and inter-object communications. To revalue ratios of the material / virtual. In particular, the need to rethink (including in ethical and legal field) definitions, rules of functioning, value systems and boundaries of responsibility emerging new types of collective subjects- both with and without human intervention.

Considered dynamics of converged cybertechnologies, in particular the development of blockchain services, we present firstly in the anthropological dimension of human technoevolution;

Secondly -in the ontological dimension of recent "quantum leap" in techno-aromorphosis fixed by noosphere Cosmology / Eschatology "situation", third, -to epistemological dimension problems extracting values and meanings in proliferating "big data", which is also critical for convergence of blockchain technology and artificial intelligence.

Concept of Industry 4.0, as the most integrated project of cyber-reality "objectifying", involves integrated development of all elements of the "supply chain": the complexity of the

problems of development of digital production, industrial cyberphysical socio-technical systems of a new level in the context of an Complexity Sciences- is in adequate building of efficient and secure interactions and communications between the smart factories, smart logistics, and smart cities local communities. Socio-cultural and anthropological dimension of collective actors involved in the production and consumption of industrial 4.0 products is, in our view, crucial. In this sense, we are interested in the convergence of blockchain with digital technology of distributed production of Industry 4.0 cyberphysical systems. In particular, it is critical for the idea of the main basic income, and we must recognize that the automation of production trends, logistics, and even management (decentralized autonomous organization, smart contracts etc) confront us with challenges of more multidimensional economic and socio-cultural design values dynamics -New products and services.

Complex design of data economy (physical and neuroactive trackers, environmental sensors and actuators ...), the development of micro- and macro-crowdfunding with the involvement of experts, build transparent mechanisms of collective entities (including the short-lived), colored coins and other blockchain technologies can help the harmonious development of socio-humanitarian dimension of the project Industry 4.0.

The role of augmented reality (AR) in the development of cyber-reality is natural, because AR is one of- identification (ID) tools, inter-object communication of becoming cyber-ontological shift. AR can be used in the design, inspection, logistics ... For example, the assembly lines of the smart factory can "see": to recognize the details of collected units, their history, specification, etc. Moreover, the AR-gamification can be used at the stage of "order": for example, residents of the neighborhood can together "construct" a new playground, modifying and voting for your favorite options with your smartphone camera in a mixed reality of his yard. Augmented reality seems to us one of the major interfaces of cyber-ontological shift perceptual revolution.

On the issue of management in research and development of complex cyberphysical systems, we must remember that Russia has accumulated unique experience in managing socio-technical systems in nuclear research. The task now is to transfer these management instruments, information and communication solutions in this specific area to the sphere of development of convergent technologies, in particular Industry 4.0.

One of the functions of philosophical reflection of complex-system processes is flashing the edge of noosphere and cosmological perspectives, edge meanings and horizons of anthropotehnological development. Blockchain- is not just a distributed ledger, but some begining of a new level of digital eternity. Similarly, for a harmonious co-evolution of man and machine, it is necessary to conceptualize the socio-anthropological and socio-cultural models in which a virtual reality, augmented reality, created in conjunction with organic, inorganic and hybrid entities -are not alien worlds, but- our total organic life-world, Umwelt, to be exact – cyber-umvelt.