RRI 2016
International Conference «Responsible Research and Innovation»

MAN AS MATTER OF ENGINEERING: ETHICAL, EPISTEMOLOGICAL AND TECHNOLOGICAL BOUNDARIES OF TRANSHUMANISM

Vadim G. Lankin (a)*, Maria N. Kokarevich (b), Tatiana B.Lysunets (c)

* Corresponding author

(a) Tomsk State University of Architecture and Building, Solyanaya sq., 2, Tomsk, Russia, lankinvg@mail.ru, +79521588419,
(b) Tomsk State University of Architecture and Building, Solyanaya sq., 2, Tomsk, Russia, kokarevich@mail.ru, +73822653333
(c) Tomsk Polytechnic University, Lenina Avenue, 30, Tomsk, Russia,margaret@tpu.ru, +79039148560

Abstract

The article provides a thorough analysis of the problem of human consciousness and artificial intelligence compatibility in the framework of theories and projects of modern transhumanism. There are approaches to the consciousness viewed in the framework of cognitive science theories aimed at the direct correlation between the structures of human reasoning and programmes of digital devices. The study is done from the perspectives of the consciousness being the constructive act of meaning making. The authors suggest distinguishing fundamentally the ways the consciousness is influenced by a semantic discourse or a narrative that are typical for the culture of a classical type, and, on the other hand, by a circum-consciousness influence on a person, which is typical for modern social and humanitarian technologies. Special emphasis is laid on anthropologic beliefs and theories transformations regarding the assumed and planned ways of the influence on a man by means of social and humanitarian technologies. This effect is given in the article through the notion of the anthropological horizon. A thoughtful regard is given to estimate the capability and perspectives of cognitive science and transhumanitarian projects development, and a modern practice of human and electronic information systems interaction.

Keywords: Consciousness; act of meaning making; transhumanism; post-person; artificial intelligence; anthropological horizon.

1. Introduction

Transhumanism bases on the idea that a person is merely an evolutionary prerequisite for the perfection of post humanity (Baker, 2016). In particular, the progress of machines (digital devices) is so rapid and promising that the machines will overgrow us in the nearest future. We will have to agree to the role of "pets" in the world of machines or coalesce with them allowing them to be weaved through according to their matrix.

The transhumanists predict the coming of a "technological singularity" by the year 2045when the artificial intelligence of the web dramatically excels the total human intelligence (Cuadrado, 2016). This is the subject of NBIC technologies (the complex of nanotechnology, biotechnology, information technology and cognitive science). This conception concedes the existence of a medullary substance analogue and the implementation on its base of the existing or even unprecedented psychic qualities and abilities. The enthusiasts believe that the cerebration deciphering gives the start to the flourishing of the trend development. Then, basing on the hybrid digital-to-analogue architectures, the computers become neuromorphic (a brain-like) and there appear the social neuronets and a hybrid man-machine intelligence.

These hypotheses, plans and predictions are supported by a number of adherents while undergoing a strong criticism from the opponents. Fukuyama (2002), controverts the positions of transhumanism appealing to the arguments of the human nature and even to legal matters. He considers the time of transhumanitarian practice to be our time and the widely used psychopharmaceuticals to be the marker of human denaturalizing performed by means of direct technological sources. The counterarguments to transhumanism are given by the social philosophy. Some opponents consider the transhumanism to be of religious context (Cox, 2016; Tirosh-Samuelson, 2012). The human – machine technological systems relations are being considered from different sides. Campbell, (2016) and Shaw, (2016) give a diversified systematization of the relations.

2. Methods

The approach, where the aspects of humanism and technology, or to be more precise, the aspects of anthropology and technology, are viewed from the common basis, can clear up the question of transhumanitarian discourse. The task is connected with the understanding of the reference system where the phenomenon of a man, on the one hand, and the phenomenon of technology, on the other hand, become commeasurable. Moreover, the sound answer to the problem must be based on that reference system that allows describing the way how the social technologies can be embedded into the society system. It is obvious that the discourse of transhumanism needs a philosophical methodological approach based on the fundamental anthropology and social philosophy.

Studying the phenomenon of transhumanism, we focus our attention on the issues of the human's consciousness and the machines' "artificial intelligence" intercommunication. The reasons for limiting the attention to this type of intercommunication become its rapid development and the possibility to view the problem more directly and thoroughly.

According to the study, the technology is regarded to be a special part of culture though not the core element of it but the periphery. Understanding the culture as the experience of a human thinking and re-thinking of natural existence, it is possible to trace the transformations of a technical character having

been integrated into the system. The technology is the transformation based on a re-thinking though the essence of the technology is not in the re-thinking. The technology does not generate new laws of being but uses and enhances what has already existed in nature. Culture can give absolutely new supernatural attitudes of human activity, it can develop laws that cannot be narrowed to the laws of nature but are built over. Machines and technology express an active human's adaptation to the natural human condition. Culture, machines and technology can be viewed as a nut, the core of which represents a living programme of human activity, the field of the acquired senses; whereas technology is the shell which serves to mediate the human's being into the conditions of outer, nonhuman and interhuman environment, to adapt the life of a human's subjectness to the human conditions. Technology is the means which is planned and ranked by the means and by the category of effectiveness, profit and comfort. Culture is the summing of sense, the discourse of aims and the narrative of values.

This correlation seems apparent, though the technology tends to substitute the culture: the principle of warranted adaptation tries to displace the principle of an open creative act.

This is the principle level where the core of the problem is revealed. A man's turning into the object of a machine, the projecting of a man-machine, viewing the consciousness in the context of cognitive sciences, or, to be more precise, in accordance with the analogue calculator become obvious. The "shell" of the nut ingrows turning the essence into the structure of its hard shells.

Methodologically this approach should be connected with the special logics. In this study, we regard it as the logic of an act opposing the metaphysics of being (Lankin, & Grigorieva, 2009). According to this logic, the being is born in an act, at least the human and the social beings are. A human is viewed as an open act of sense creation realized through the consciousness activity. The consciousness in its turn has its own act structure. These are the structures that are essentially constitutive to the human's system. They are not the characteristics of nature. These are the structures to constitute the sense that lies in the basis of the building of the aims and values that are not provided by the nature as the source and instance of the given circumstances.

Here comes the hypothesis: a human as an act and the society as an act are not subjected to technical transformation in their act structures. Only natural circumstances can be transformed; the circumstances our activity is submerged into, the circumstances that play the essential, the technical role. From the point of view of this approach it is possible to see that machines and technologies have the limit of usage when talking about the influence of the technology on to the system of human's activity in the sense of humanity and social technologies. The technological influence on the sphere of the human's supernatureness is fraught with the overthrowing of human's reality, flattening it up to its natural contexts thus resulting in human's annihilation and the collapse of the society. The term "post humanity" implies a liquidation project but not the uprising vector of the development. This "super natureness" – the conscious as an act of meaning-making – is a "Rubicon" for the technological applications. Crossing it implies the risk of destroying the constitutive structure of all human. Considering the balance of anthropology and technology, it is possible to trace the logical inscription of the technology into the anthropology: the human is the creator of the machines and the machines are dependent on the human. It is worth paying attention to the inverse relation. The idea of a human being the subject of technology is seen nowhere but in the conceptions of transhumanism. It is necessary to mention that the correlation has already taken place: not the indirect "man-machine" correlation, but the dependence of the notion of a human's essence

powers – the anthropological concepts - and the planned or approved ways of an active impact on the human reality. In this conclusion, we introduce the notion of "anthropological horizon".

3. Results and Discussion

3.1 Anthropological horizons – the epochs and approaches

A historically flexible anthropological horizon is an imaginary "line" in approaches and definitions of the human, where the sphere of the human immediately adjoins the modern socio-technological transformation or planning with the human social regulation and human's shaping practice. This is the peculiar line or the zone where the human theory ideas are focused and directed to this or that epoch. The ideas reflect the qualities and issues relevant and important for the social technologies the development of which is the characteristic of the definite epoch. Usually, the anthropological theories are not inclined to look beyond the horizon; they emphasize the sides and qualities in the human's reality that are effective to be influenced on. The theory makes attempts to bring the notion of a human closer to the horizon, to make the notion of a human be an operating notion. Some distortions of the view are possible: things that are close and practically important may seem too important whereas the fundamental essence of the being can be blurred. For the anthropological theories, the experience of the priority active influence on a human is extremely important. Under the priority active influence, we understand social and humanitarian technologies amongst which the communication and social memory technologies are of immediate concern.

The book-printing can be given as an example. Its phenomenon affected not only the standardizing of all spheres of society life but it entailed the changes in the role of the text. The text becomes the "message to the humanity", the content of which has to curve back on to itself, to self-organise as a theoretical system, the complete self-consistency. This might be one of the reasons for science to advance. Abookbecomesthespecialcommunicativetechnologywhichcanbecomparedtoa "mirror of a consciousness" and the main information technological basis for classical type culture formation (Lankin, & Grigorieva, 2009).

The distinctive turn in the view on the reflection of a human and his awareness of the epoch is the epistemological turn. The change in the view on human's abilities is connected with the epistemological turn. The cognition becomes a privileged and a core aspect. The transformation of the consciousness – a notion into a cognition-notion-is identified unambiguously. A man is now viewed as a rational creature. It does not mean that the moral senses have stopped, the divine mystery has been exhausted or the heroic deeds have worn out. It all exists but the desire for it looks as a nostalgic transport of a human's being: too sentimental or excitedly romantic.

In the XIX century, the efficacy of humanitarian practices shifts towards other modality: the sensitivity of art and the revelations of the mass media. Consequently, the anthropological horizon moves and covers the areas of irrational and then the unconscious in a human. The issues of will, ethics, calling, meaning-making reason are replaced by the issues of reflexes, desires and reactions. Considering a human's being in the light of unconscious is the true sign of mass media and the corresponding technologies domination in the human reality impact. The inculcating power of the radio, the hypnotizing power of the cinema, the

involving power of television, the seducing power of advertisement and the agitating power of sensations are appealing to the unconscious as if bypassing the consciousness.

The mass companies of the XX century, their highly technologized practices added to the transition of the anthropological horizon to a wider, qualityless, reduced sphere, which, from the methodological point of view, should have been named the sphere of human circumstances. The crowd effect becomes the major subject of all social technologies of that epoch.

The anthropology of the post-person implies the absolute amenability of a human being to the effective technologies in their direct impact on every person as an element. Regarding a human being, it becomes possible only if basing on the sphere of irrationality through expansion of it as opposed to the influence of the consciousness being deprived of the power and activity. This is the reduction of a human to his irrational reinforced technically, and the reduction of a society to the net of the links being similarly technologized. While studying the human nature, the attention is transferred to the cognitive theories in psychology. Now the anthropological horizon lies in the sphere of cognitive sciences where the theme of artificial intelligence is closely connected with the theme of human abilities. The significant changes of technological sphere are always preceded or followed by the realignment of the coordinates of the human setting his new status – the status of the creature subjected to changes. A "man-machine", a "man-animal", a "homo economic", a "moduledman", a "machine of desire", a "post human" are the prerequisite notions of this field.

A modern configuration of the world net is the configuration of a machine system with its peculiarities of the rate of response, accuracy of formal analytics and infinite memory. A man, working in the system, has to answer this configuration: he has to create more complex and senseless information-intensive formal texts preparing the data for the machine memory: for example, various funds and data banks which formal-analytical structure corresponds to the machine programme configuration but not the human mind. A man has to serve the system with its constantly growing memory and the rate of variations whilst the man himself is not inclined by the nature of his mind to the ongoing reskilling and changing of standards. These all are the noticeable attributes of the de-humanized trend into which the human mind, more and more closely connected and dependent, is being involved.

Extrapolating the tendency to the future and imagining the next stageconnected with the intracorporeal digital elements, the elements with the intrusion of machine system into the human's brain, with the corresponding alterations of the work structure, it is possible to trace the edge where the shift to the de-humanisation and de-subjection of the system man-technology, as well as the system society-social technology, starts.

The technological advances of the recent decades are generally aimed at the man and his activity modalities enhancing. IT-technologies and the social technologies connected with it play the main role here. While developing, this transforming intention has to face with the structure of the human in that regard where it is generally sacred. Similarly to the progress that has come still in the deadlock when the constructive fantasies met with the unexplored structure of human nature, the social engineering is lost if its basic perception of a society and a human would be pragmatically shallow. Psychologism is a shallow anthropology. Not only because it starts from the non-specific status of a man and pays attention to the abilities similar to that of the animals – that is memory, attention and reactions, in order to affect them. The other reason is that the psychological is only the procedural aspect of the human structure whereas

the social is only the contextual aspect of it. The criticism of social and humanitarian technologies is connected with the fact that the system based on psychological and digital factors faces the essential nature of human existence, tries to reduce it and malforms it. Meanwhile, the principle of human reality is essentially different from that of the animal one, as well as the principle of amachine. It is the principle of reflection as opposed to the principle of reaction or the chain of commands. Consequently, this is the principle of sense as opposed to the meaning, creative synthesis to rational analytics, discourse of meaning to the principles of memory and recognition. The human activity, adding new entirety in its meaning making quality, is overbuilt to the factors of memory and reactions common for all flesh and modelable in machine programming. In this quality, the human activity cannot be controlled according to the technological schemes.

3.2 Cognition and transformation

At the stage when practice is oversaturated with the skills of transformation, the search for truth can neither help nor prevent it from altering the being. Having the alteration as the aim, the knowledge of the laws "how it is and how it should be" becomes the obstacle. It encourages the knowing of technologies to eliminate the truth of cognition.

These tendencies are the characteristic of many fields of knowledge. These tendencies of knowledge technologizing are becoming more transparent in social sciences: this is where the radical constructivism revives. According to the radical constructivism, the sense and the aim of social cognition fully coincides with the sense and the aim of social constructing in this field. It should be mentioned that today social science is developing according to the principle of the sum of social technology development but not the principle of society organization comprehension.

The correlation between the cognition and transformation reasonably lead to a new instance appearance. The instance is the humanitarian expertise of projects and innovations. The humanitarian expertise must be guided by the criteria of objective alteration constructivity measured by fundamental theories, but not the criteria of effectiveness embedded into the fascinating project logics. The philosophical ethical principle comes the first here. It should be aligned with the principle of searching truth about a human (Siskind, 2015). Nevertheless, theideaofthehumanandpost-personrealityequivalenceisseeninthemodern management and expertise practice analysis (Sage, 2016).

3.3 Human Consciousness and "artificial intelligence"

Human consciousness and "artificial intelligence" differ in structure and are not similar in modality. It is impossible to narrow one to the other basing on the modern models of programming while creating the artificial intelligence. The issue whether the artificial intelligence needs the research of the genuine one is still urgent (Anochkov, & Murat, 2014). There are two points of view: the one prioritizing the technical modeling and the other claiming the necessity and the priority of the genuine intellect research. There are a number of studies aimed at the bilateral rapprochement of the methodologies of human consciousness cognition and its machine analogue projecting. There is the possibility to start from the psychophysiology and to approach its ideas to the formalized and computative machine intelligence (e.g. the project of the neurodynamic codes of subjective reality deciphering). In artificial intelligence creation, this is the characteristic of studying the cerebrum microstructure as the conductor (Siskind, 2015).

It is possible to move from the position of the computer discussing the possibilities of identification of the consciousness of the digital calculating machines.

There exists the approach which develops the idea of the structural and the essential distinguishing of the consciousness and artificial intelligence while corresponding to only separate functional properties. But these are the properties that make the analogue valid for practice. There appear the theories of irrational systems that are behaviorally and functionally similar to the conscious creatures but do not claim the quality of the conscious: this sort of systems can be compared with a "philosophical zombie". There are many questions that need further consideration.

Conclusion: Consciousness as the act of meaning-making is the function which cannot be handed to the machine intelligence, digital systems or analytical procedures no matter how powerful they are. The consciousness functions as a unity, as the correlation of a whole with a whole making a new discrete unity but not as the correlation of one element with another one or an element with the preassigned whole. Consciousness as the constitutive ability of meaning-making – the making of new entitiesenables one to have the discourse of aims and values not only the discourse of the means the narrowness of which is so typical of technological thought. The creative status of conscience is the new entity creation – the high – the above-nature one. This is the model of consciousness as the reflexive meaning-making act. Technical simulation of it is basically possible but not in the way the work of digital devices is programmed today. In the field of cognitive science, the idea of multiactors neuro nets corresponds the paradigm of the neurophysiological models structure of consciousness as an act. This model is the most remote from the concept of reductionism and allows one to view the consciousness phenomenon not as the sum of direct reactions but as the sphere of mediated emergent effects run in the system as a whole (Anchokov, 2014).

It is possible to study the consciousness in the focus of the anthropological horizon defined by the practice of creation of artificial intelligence. This study makes the aspects of thinking models more definite and contributes to the specification of psychophysiological concepts. The threat lies in the incautious projection of the modern technological models onto the image of conscience. Here the cognitive science works on the diminishing of the ontological status and garbling the system-making structural facets of consciousness by means of the methodology of reduction. This, in its turn, can lead to the practice of degradative dehumanization. A comparative correlation being implied, the image of consciousness,as it is projected in the cognitive sciences, as well as it is programmed in the modern digitalsystems, is more the animal thinking analogue with its reaction-and analyticabilities, rather than the human's consciousness analogue with the principle of the united reflection over the reactions typical for it. The factors of the capacity of the systems designed, their velocity, accuracy or the memory space do not change this principal system-structural discrepancy.

One cannot deny the possibility to design artificially the consciousness itself but not the cognitive substitute of the modern digital models. To make it happen, it is necessary to start with the consciousness cognition and only then to move to the technical models. If we imagine this model to be realized, then it would be a peer for a human – the device that is able to understand the human as the author of the meanings, the device able to create similar meanings for the interaction rather than a machine actor combined with a humanand controlling him.

3.4 Nature and technology: amends or transformation

It helps to determine the limit of goal-setting while impacting technically on a human. The claim to alter the human's nature is not justified. The nature of a human is a complex microcosm with the system-forming core of the nature of consciousness. Transforming the man's mentation into a series of commands and analytical transactions, as it is done in the digital systems programming, is fraught with demolishing of this nature. In this regard, it is important to distinguish between the aims connected with the compensation of the natural human's deficiencies with the help of technical devices from that of the human's nature transformation as the specific aim claimed as the basis for transhumanism strategy. This aim seems to be destructive.

4. Conclusion

The analysis of the aspects of transhuman's hypotheses and the corresponding practical projects allows us to give the relevant and proved assessment of their feasibility. Not only the technical aspects served as the feasibility basis, but also the principle system characteristics of the reality which is supposed to be dealt with. These are the characteristics of the consciousness, only the separate activity elements of which are constructed technically. This is the base that allows having a really windowed estimate of technological projecting aimed at changing the man's nature. In this regard, we have the perspective of a new understanding of the role of social engineering as an active regulator of social technology development without limiting by the sphere of their production. It is possible to distinguish the humanity assessment as the tool for assessing the constitutive technical innovation potential in the field of impact on a man and a society.

As a conclusion, introducing the arguments of the consciousness as an act of meaning making theory to the anthropological and futurologic discourse allows us to discuss the issue at the level of deep philosophical dispute and to avoid making a number of specific scientific suppositions based, as a rule, on the fragmentary reductive base.

References

Anchokov, M. I. (2014). Solution to the problem of training a multi-agent neural network by means of a multi-chromosome genetic algorithm. *14th International Conference Hybrid Intelligent Systems*. 97-103.

Baker, J. (2016). Exits to the Posthuman Future. *The Posthuman, and Posthumanism,Thesis Eleven,* 132(1), 121-125.

Campbell, H.A. (2016). Framing the human-technology relationship: How Religious Digital Creatives engage posthuman narratives. *Social compass*. 63(3), 302-318.

Cox, D. M. (2016). Prophets of the Posthuman: American Fiction, Biotechnology and the Ethics of Personhood. *Modern theology*, 32(1), 139-141.

Cuadrado, G. & Angel, J. (2016). Human or posthuman? Technological singularity and human improvement. *ScriptaTheologica*, 48(1), 222-223.

Fukuyama, Y. F. (2002). Our Posthuman Future: Consequences of the Biotechnology Revolution. *Farrar, Straus and Giroux*, 256 p.

Lankin, V.G., Grigorieva, O.A. (2009). Book as information and technology basis of culture. *Sociological Studies*, No.7. p.78-85.

Sage, D. J. (2016). Rethinking construction expertise with posthumanism.*Construction management and economics*, 34(7-8), 446-457.

Shaw, D.B. (2016). The posthuman condition: ethics, aesthetics and politics of biotechnological challenges. *Science as culture*, 25(2), 289-295.

Siskind, J.M. (2015). Conducting neuroscience to guide the development of AI. *Proceedings of the National Conference on Artificial Intelligence*. 6, 4067-4072.

Tirosh-Samuelson, H. (2012). Transhumanism as a secularist faith. *Zygon: Journal of religion and science*. 47(4), 710-734.