

The Idea of Anthropological Key in the Sociotechnical Landscape Concept

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Abstract

The new super-sophisticated technological pattern forming at the beginning of the 21st century demands its interpretation from the human and sociotypoint of view. The purpose of this interpretation is the search of adequate ways of human and new technical environment synergy. It is necessary to create new instruments of representation, monitoring and managing the complex phenomena of social techno sphere in order to explicate these processes. We are continuing to study this topic through constructionist development of sociotechnicallandscape(STL) concept, the formation of anthropological keys of its understanding and interpretation. The methods of synergy, quantum theory and quantum synergy anthropology are used to search of the instruments and work with STL, create local landscapes based on different taxons in the conditions of complex topology and create anthropological keys in order to find out the basic characteristics of evaluating STL.

Keywords: sociotechnical landscape, digitalization, anthropological key, generalized embodiment, anthropological profile.

Introduction. The problems of the digitalization of modern technological pattern reflected in generally accepted concept economics of Industry 4.0, Big data, Internet of Things, Blockchain and the theory of complexity with imminence assumes the understanding the processes of the engagement of the new technological way into the human and social lifeand its synergy with them. In order to explicit these processes it is absolutely necessary to create the new instruments of representation, monitoring and management of the complex phenomena of social and technological sphere, and we develop this topic in our research through deepening the concept of sociotechnical landscape (STL), creating the anthropological keys of its understanding and interpretation.

Methodology. In the recent decades attempts have been taken to explain many phenomena of anthroposphere and sociality through holistic phenomena of coherence, dynamic chaos and quantum RCS effect being viewed as the new basis of holism(A. Mindell, R. Penrose, I.V. Danilevsky, B.M. Mensky). The same ideas form the foundation for the quantum-synergetic anthropology developed by V.G. Budanov [1]. This theory unites the methodologies of synergetic [2] and quantum approach, which enables us to explain the complex developing hierarchic systems of our generalized embodiment [3], and is used to create the anthropological key of reading the Sociotechnicallandscapes. The second ground of our methodology is the concept of sociotechnicallandscape. Let us remind you the conceptual understanding of STL, the coordinate network of which is set by the direct product of an array of meaningful social practices (SP) and an array of digital technologies (DT) or SPxDT [4]. The elements of these arrays are the taxons of generally accepted digital technologies and social practices accordingly. Due to the fact that these arrays are finite, the coordinate network will be set not by the coordinates of points on the continuous surface, but by discrete elements organized in the form of a table or matrix. Let us make the convention that the elements of SP array mark the rows of the table and the elements of SP array mark its columns. Further on we will call this coordinate matrix the matrix base of Sociotechnicallandscape. We point out that the choice of the taxons and practices as well as the formation of their tuple is a result of the expert' agreement and the convention of the researchers. In other words, unlike the geography we are used to with its metrical characteristics(closer-further), digital geography has more variety in building the coordinate base and thus introducing landscapes, which is definitely in the character of naturally not orderable or incommensurate objects.

As the third dimation («height») the degrees of social demand on technologies, riskogenics and other actual characteristics, indicators and markers, construction and analysesare used forecasting the behavior of which is the final objective of finishing the construction of the landscape. Thus over the matrix base various profiles

arise (surfaces in three dimensions) which we will call suspensions or responses over the base which define particular sociotechnical landscapes. Their combination is an integral sociotechnical landscape or, to be more precise, multilandscape.

Every sublandscape creates an effective, sensitive, specific and resultative three dimension profile, which is an observable and controlled object in the terms of cybernetics possessing definite interface in order to be bound with the other sublandscapes. This allows us to organize the process of monitoring, diagnosis and analyses of the condition and the development of techno and anthroposphere on one of its characteristic (chosen indicative) parameters with the help of well-known techniques of registration, measuring and qualimetry. Such concept of STL was offered by us earlier in basic articles [5], [6] and was developed in a monography [7]. Further development of the STL concept demands a constructive definition of the understanding of suspensions over the base and the criteria of its estimation via anthropological key which is offered below.

The structural design of the STL concepts described

In the definition of landscape which we gave above we factually deal with the symbolic presentation of the direct product of practice and technology sets into the sets (clusters, assembles of objective functionals) of results: risks, perspectives and competences which are symbolically specified as $SP \times DT \rightarrow RI$ - (Results, Response of Interaction). It is principal that for every taxon and its subtaxons or response a special identification is set, which is its symbolic narrative part or its name, which allows us to create both its disposal in the symbolic databases and digital or quality description of its characteristics and concepts if such are possible in the alphabet and terms of the language being used in the topical area under analyses.

The symbolic and the digital parts together are defined as a "container" (Kont) for this taxon. We suppose the term "container" to include linguistic and digital data to represent the taxons and the responses. This understanding is close to the concept of syndromocomplexes, frames, set containers in programming, but it is used in a specific for us application area, in representing the phenomena of anthropotechnosphere.

Results or responses of interaction or RI can be reflected in symbolic as well in digital form and can be described with the help of corresponding containers. We must point out that the digital form allow us to use not only semantic and logical analyses, but to use detailed methods of applied mathematics (including the grammar of various degrees predicates). Then using the analogues of syndrome-based approach and the theories of fuzzy sets a contained can be presented as a linguistic variable. In this case the digital landscape is set through building a function or objective functional (heights) prescribed on the digital components of containers of the base which reflect them into the digital containers of responses-results.

Digitalized landscape is an array of function representations $Kont (SP \times DT) \rightarrow Kont (RI)$, in which the response (vertical) is set by a traditional definite metrical axis. We should pay attention to the fact that the containers of the base and the response may have different dimensions and, generally speaking, we deal with the reflection of the multitude of different dimensions into each other which is the subject of catastrophism. For our purposes of visualization when constructing the landscape we usually observe the behavior of one parameter. If we are able to represent the base container as the direct product of containers in the taxon $Kont (SP) \times Kont (DT)$, we will get a typical image of a landscape in a three dimension system of coordinates. If in the containers of all the taxons there is a general characteristic (like levels of financing or popularity), we get a landscape imminently over the semantic matrix base.

The anthropological key of digitalization or the ontology of generalized embodiment

Let us now turn to the human-like parameters which are often badly formalized. They inevitably arise when estimating the anthropological and social risks and deformations when introducing this or that technology into the social practices. At the ground of the approach that we offer the idea of introducing the concept of "anthropological key" lies or, to be more precise, the functional ontologies of generalized human embodiment, which are the subject of digitalization and can characterize the degrees and the risks of human nature deformations. We should point out that such problem definition is offered in the book by B.Ju. Judin [8]. We suggest to use the original methodology of quantum synergetic anthropology mentioned above.

Any instants of human external activity or internal being are reflected in the functional bodies of the human and the society [9]. Let us introduce our system of generalized embodiment.

Somatic body is viewed by us as the description of the object at a minimum rate of stimulation when we abstract from its reactions. This is the description of the material body and its elements in the space.

Energetic body (vitality) describes the degree of body mobility itself, the speed of its elements' relative position change, the intensity (the ability to produce work) without external stimulations. This is the body of connections between the elements and the energy of these connections.

Reactive emotional body describes the simplest reactions of the body on the contact with the reality, perception from sensory organs, the ability of the body to localize the energy and the actions in response to particular stimulations. This body allows to resist the environment and support homeostasis (if the type of the reaction corresponds). The physical body together with the reactive body can be called the body of flesh or the body of desire. It is important to mention that in our classification a robot also possesses flesh (in the form of non-protein material). The emotional body (the second component of reflective emotional body) is connected with psychosomatic reactions and reflective processes.

Logical or algorithmic body is characterized by the reaction of the body to multiply repeated stimulations, on constant contact with the environment and the reactions it remembers. As a result behavior reflexes, logical bounds “if-then”, algorithms formed by the environment are worked out. Logical or algorithmic body in its turn is activated by emotional and motif-based motives of the body of desire. That is why we can speak of the logical body as of the body of common sense. This body is most effectively developed and inherited in semiotic systems of human culture and is effectively modeled by the computer systems of artificial intelligence. Notice that the bodies described(1-4) have until present time been well modeled by the modern methods of nature studies an information technologies and have recently been fulfilled by the principles of synergetic and quant coherence.

The following bodies of high mental organization are impossible to understand without bringing in the synergetic and quantum holistic principles. *Intuitive creative body* appears in emergent acts of valuable information generation such as imagination, recognition, insight, foreseeing which are not given in the forms of reflective or logical action and are not connected with search operations or mechanical imitation. In particular the intuitive body is responsible for changing the algorithms without long “transitive” procedures of working out a new behavioral pattern, which is an integral part of creativity. Sometimes it turns long logical stages into the act of insight or suggests you a “crazy” hypothesis. It gives us a ground to speak about a particular type of working with time, memory and forecast, converted knowledge. This body enables the system to be superadaptive in the new circumstances.

The complex of interaction of the emotional, logical and intuitive bodies is sometimes often called a psychomental body (sphere). It is particularly responsible for the perception and the recognition of our internal embodiment, for forming the image of remote body of culture and body of senses. The central body or reasoning, the monitor of being is the logical body, it includes the codes of recognition and the body of senses, the subject body after Husserl. From the mentioned above we can make a suggestion that the intuitive body can “connect with”, communicate with the other systems, tune to them. It delocalizes and its boundaries are ambiguously larger than the boundaries of the physical body, which enables to read the specific, noosphere informational potential.

Coherent empathic body is responsible for the states of superopenness and unity with the other bodies, phenomena, parts of reality, people and world. For example they are the states of experiencing the love towards yourself, fellow human beings and the “oceanic” feeling of love for the whole world which is the peculiar feature of saint, spiritual people. However the feelings can be different, even opposite, for example, hate. The intensity of these states, their subsequences set the measure of coherence. It is also the state of empathy or the concentration on the object which has always been the basis of religion, art, science, in-depth communication, psychotherapy, concentration, hypnosis and magic. The mechanisms of realization of this body are the same as in the case of the intuitive body, i.e. holistic phenomena of dynamic chaos and the phenomenon of Podolsky-Rosen.

The body of will declares itself as an instant state of readiness, determination, potential of action and power. The body of will is an aspiration for the aim in all the bodies (apart from the physical one perhaps), i.e. beginning with the body of flesh. The power of will depends on the degree of coherence, sub bodies of will in the other bodies, that is why the body of will is delocalized as well as the intuitive and the coherent body and is described with the same transconscious holistic mechanisms. It shows in the rigidity of the negative feedback while achieving the goal: in the body of reflex it is will for life, in the body of emotions it is will for pleasure, in the body of logic it is will for explanation. We must point out that the bodies of intuition, coherence and will are mostly transpersonal and transconscious. They are often referred to as the spiritual body of the human. Here we followed our works [10, p.162-163] and [11].

In addition to the 7 functional bodies mentioned, in order to describe the social communication which is radically deformed in the age of digitalization, we will introduce 3 more bodies of communication. Communication can be easily measured if divided into three types.

The body of material reality communication (MRC) is the immediate communication with the other people eye-to-eye, with nature and with gadgets. Here we fully realize the processes of empathy and socializing, the communication channel here is straight, without mediation.

The body of virtual reality communication (VRC) is the communication in our imagination with people and nature, autocommunication, communication through art, books, television, radio, virtual digital game characters and so on. Here a great potential of upbringing, education and translation of cultural examples and knowledge, the language of science and creativity can be seen.

The body of augmented reality communication (ARC) is the communication with other people and material reality via technology, gadgets, navigators, internet of things, networks in the web, distance learning tools and so on. In this type of communication the information exchange goes with tremendous speed, we can witness fast processes of social, political self-organization and manipulation, creating new actors of social development – digital platforms and social networks.

Conclusion. For the representation of sociotechnical landscapes the ontology of states built enables to represent the anthropological profile of personality rather structurally and vividly in particular activity states. The visual realization on the anthropological key can be conveniently pictured in the form of Cartesian orasterial diagrams of anthropological profile basing on 12 quantitative characteristics of activation mentioned above functional bodies. These may be for example states of involvement into different types of free time games, every day or professional activities. Such profile diagrams are a basic part of anthropological key that describes the influence of digital

technologies of different social and personal practices and it enables us to introduce the criteria of their anomaly, possible risks and ways of managing them, compensation correction of the anthropological key. Further on the ontologies and social and personal states reviewed should be completed by temporal activity aspects and to understand the reason and the tendency of the change in the state it is necessary to consider life processes, take into account the activity and environmental factor of human and society development. We hope to dedicate our next work to these problems.

Acknowledgement

The research is financed by the Russian Science Foundation, project №19-18-00504 “Sociotechnical environment of digital reality: ontological matrices, ethical and axiological regulative structures, roadmaps, and information support for management decision-making”.

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