

# Digital Reality: Temporal Aspects Of Discursive Representation, Social Construction, Predictive Experience

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## Abstract (12 pt)

The present paper considers the whole of experience of sociological and socio-philosophical understanding of digital reality phenomenon in the categories of its temporal coordinates. The article discusses the influence of digital technologies' temporality on their social construction practices, as well as the main parameters of representation in various discursive spaces. In conclusion, the experience of predicting the development of digital technologies in the aspect of their riskogenics is presented.

**Keywords (12 pt):** Digital Reality, Digital Technologies, Social Construction, Discourse, Temporality, Risks, Predictive Scenarios.

## Introduction (12 pt)

High rates of technological development, including those connected with the emergence of digital reality, cause significant social, political, economic, and in a broad sense, existential consequences. The process of new reality formation, described in terms of digital discourse, has become the object of numerous studies that consider the content of the process itself and assess its consequences. At the same time, the theoretical and methodological question of determining how the process of social construction of digital reality, its discursive representations, and what their temporal coordinates are remains insufficiently clarified.

The technological transformations taking place in the context of the modern society formation and the consequences caused by them are currently ahead of the dynamics of public control and the degree of scientific reflection. However, each artifact of digital technological reality is reflected in various discursive spaces (scientific, everyday-practical, artistic, etc.) in various forms - in the form of a myth, an ideologeme, a pattern, etc. As a result, the meta-theoretical problem of studying the common logic and temporal dynamics of digital reality representations in various discursive spaces is important. Not only the content of representations is significant, but also the principles of their development and changes, considered as part of time dynamics.

## Results and discussion

The initial intuition of the analysis carried out in this study is the assumption that the temporal parameter is embedded in the very semantic essence of technological development. It is obvious that each technology as a fact and object of social reality is caused by a number of reasons of social and scientific and technological nature: that is, it has the past, relies on users' practices in the present, and is limited to a certain horizon in the future. This horizon is potentially distant, but

unavoidable; outside of it, the functioning of an artifact or technology will cease to be relevant, or at least lose its instrumental modality. Thus, a chain of three temporal modalities is built: past - present – future. However, behind this obvious fact there are also less obvious temporal aspects of technological and more broadly – digital development.

Digital technologies form special temporal loci in the common physical and social chronotopos. This trend is noted by a number of modern sociologists [1, 2, 3]. Also, within the framework of synergetics, the concept of tempoworlds – the loci of the world provided by the existence of a special temporal order is developed. That is, explaining this idea, we can say that a tempoworld is interpreted as an autonomous fragment of the world with its own internal time, running independently of the rest of the world – other tempoworlds, due to restrictions or lack of interaction with them. In different tempoworlds, the pace of time can be radically different.

The overall growth of research interest in the problem of time is largely due to the role of modern technologies. It is their development that defines the form and content of temporality in a new way, expanding classical ideas about the linear nature of time, its irreversibility, etc. Since conceptualization of engineering and technology gets widespread as an independent actor with genuine subjectivity (e.g. in the framework of actor-network theory), there should be analyzed the status of technology and time symbiosis as equal subjects in the structure of special technotemporality. We can observe various configurations of this technotemporality. The practical aspects of this question are clear when analyzing time budgets and trying to isolate the actual technological time, or, on the contrary, considering technological time as an important aspect of social time. The solution of this issue will have both social and applied economic meaning. V. A. Artemov and O. V. Novokhatskaya ask the question: “...is it not necessary to reject only the ‘human’ time itself and include the functioning of everything that is created by man in social time to facilitate his work, its high productivity, release his time for new activities, etc.? [4]. In other words, should we not include in the social dimension of time those technological aspects that shape it, in particular, accelerate or save?

Discussing the issues of technologies’ temporality allows us to assess their prospects, as well as their general profile. Using the terminology of R. Kozellek, we can evaluate “the space of experience” and “the horizon of expectations” of technologies [5]. Technologies that are relevant to their time (in our case, digital ones) have unique temporal characteristics at various stages of their manifestations. The main temporal parameters of technologies are “the space of experience” – a set of routine practices of application and, as a result, of technology domestication, as well as “the horizon of expectations” – a hypothetical description of the experience of technologies’ application in terms of their prospects and risks.

Another important aspect is the issue of temporal organization of discursive representations of engineering and technology. It is obvious that these representations are temporally based and limited. Any stable forms of discursive representation are related to the actual experience of social actors and their temporal strategies. Representations have an objective temporal goal and an inevitably limited temporal horizon (although it may be relatively distant and / or blurry). The influence of time as a context or resource can be reflected in various myths and ideologies, program texts that show the temporal organization of technologies in the concentrated form of hopes, fears, and instrumental patterns caused by them.

The multiplicity of discursive spaces of digital reality technologies representation correlates with the general understanding of multiplicity in modern scientific knowledge as an important categorical framework that fixes the ontological diversification of an object, its structural mechanisms, practices, and optics of its analysis. An important manifestation of multiplicity is the

phenomenological idea of the multiplicity of worlds by A. Schutz [6]. This idea is important for a common understanding of the processes of social construction of scientific knowledge and technology. A. Schutz notes the existence of a number of relatively autonomous worlds of finite values, each of which has its own reality and level of significance (as well as imperativeness) for the individual. The ultimate reality according to A. Schutz is the reality of the everyday world. The idea of multiple realities can be transposed to the idea of representing scientific knowledge and technology in various forms and discursive spaces. As a result, their special configuration forms the landscape in which technological artifacts function.

The phenomenological idea of the social constructionist nature of reality has been developed in a number of sociological theories. Thus, the representatives of sociology of science and engineering B. Latour, S. Woolgar [7] and emphasize the social nature of scientific fact production. The content of scientific knowledge is determined by social practices of its production. The production of scientific fact, as is said by the representatives of the actor-network theory, involves both material and non-material, both human and non-human entities. Together, these entities, as well as actions and interpretations affordances they define, form a material-semiotic network.

The sociological theory of the Social Construction of Technology (SCOT) analyzes the processes of building the image of technology that eventually becomes familiar or, conversely, is rejected by practice. An important principle of this theory is to consider any technology or invention as the result of interaction between different social groups. Any inventions, whether successful, well-established, or not fixed in real practice, are analyzed. The process of social construction of technology is complex and is provided by the so-called conceptual framework, which includes:

- related social groups – social groups that are connected with or related to a technological artifact. Their function is to give this artifact a social shell, to determine its degree of utility to society;
- interpretative flexibility – a set of ideas of different social groups about a technological artifact that determine its successful or unsuccessful implementation, as well as its evolution and the entire course of its development;
- closure and stabilization are two aspects of social construction that describe the use of technology in everyday practices. Closure means reducing the possibility of interpretation of an artifact and finally recognizing its social necessity in relations between groups. Stabilization means the same process within a group and leads to the formation of technologies for different social groups [8].

It may be added that the practice of applying and accepting technology is largely related to the experience of previous legitimation of previously conducted practices of its application. In the process of applying the technology, its public discussion, etc., its final image is polished. This is relevant both for relatively simple artifacts and for complex phenomena, which include digital technologies that hold a valuable place not only in the field of economy, production, institutional communication, etc., but also in the field of leisure and interpersonal user communication. In other words, a significant amount of practices in the use of modern technologies is not necessary, which in its own way distorts the original utilitarian orientation of technologies and reflects the consistent experience of their domestication. Thus, the public discourse builds an image of technologies and the range of acceptable practices for their application. Some issues of this kind are particularly acute and are resolved within the framework of ethics and legal practice (for example, the issue of electronic chipping of citizens, trust in a robot-judge, etc.). The practice of public discussion is extremely mobile and, in fact, is the Overton window, which defines corridors of legitimate social actions and interpretations related to this technology. In the course of public

discussion, not only the affordances of actions (practices) are crystallized, but also the affordances of meanings and values that reflect the value-normative parameters inscribed in the technology.

One of the important temporal aspects of social construction is the prediction of possible scenarios for the development of events, including risk-related ones in the digital world. There are a large number of classifications of forecasts, but the most popular one is the division into search and normative forecasts. The search forecast determines the probable states of the studied processes and phenomena in the future. Past and present trends are extrapolated to the future, without regard to possible subjective actions that can change and destroy existing trends. The normative forecast formulates goals, standards, incentives, and ideals in advance, and develops the most effective ways and rates of achieving the likely target states of the studied processes. Depending on the situational orientation of the methods under use and the characteristics of organization, various types of forecasts can be developed - target, planned, program and project ones, and by time coverage - operational, short - term, medium-term, long-term and very long-term ones [9].

The peculiarity of scenario forecasting lies in the parallel study of several development options with characteristic opportunities and risks, subjective and objective, internal and external factors, criteria and indicators. According to Herman Kahn, one of the founders of the scenario method, when solving such problems, one should “avoid simple extrapolations and thinking by analogy, which are also undoubtedly important, but do not provide the level of separation from reality that is characteristic of strategic thinking” [10]. Scenarios allow researchers of “yesterday’s», «today’s” and “tomorrow’s” risks to be focused on establishing a personal perception of the future in order to make effective strategic decisions. As well as scenarios in theatre and cinematography, social scenarios are “stories based on carefully constructed plots” [11], which, owing to the possibility of execution, become important in terms of minimizing potential risks, dangers and threats.

Variants of the conditions under which the expected development of the analyzed, evaluated or projected system is carried out are an assumed sequence of events created in order to focus attention on key points in the development of social processes [12, p. 1 38-139]. Kahn said that “a scenario is understood as a dynamic sequence of possible events that focuses attention on the causal relationship between these events and decision points that can change their course and the trajectory of movement in time of the entire system under consideration as a whole or its individual subsystems” [13, p.97].

In accordance with the ideas of H. Kahn and A. Wiener, which are expressed in one of the scenario studies “The Year 2000: A Framework for Speculation on the Next Thirty-Three Years”, scenarios make it possible to perform several functions at once [14]. They draw attention to a wide range of possibilities by dramatizing and illustrating them; force you to work with details and dynamics; focus on the interaction of social, political, psychological, and military factors; identify problems; and can be used to analyze alternatives of the likely consequences of past and current crises.

The main advantage of the scenario analysis is a comprehensive assessment of all development options, research of structural features and potential consequences of implementing solutions. These advantages will be realized owing to methods and a number of unique techniques for obtaining and processing multi-scale special information from experts who represent various fields of science and management.

When applying the scenario approach, various types of difficulties arise, which are due to the subjectivity of judgments and expert assessments. These difficulties include the following:

1. “representativeness hindrances” (caused by insufficient representation of factors and information about them);
2. “accessibility hindrances” (when what is known or what is easier to imagine is considered as the most possible and is evaluated for all practical purposes);
3. “confirmation interference” (when experts consciously or unconsciously “look for” evidence of their judgments and deny information that does not correspond to their ideas);
4. “retrospective interference” (manifestation of excessive confidence in previous opinions as clearer and more accurate than they actually are).

Building a “Problem tree” and/or “System map” is a common technique for categorizing problems with complex interactions. This construction is an ordered record of the analysis and solution components. The problem formed at the top level of the tree is generally divided into specific problems that allow the use of well-known methods of solving (economic, political, technological ones, etc.). To consider the hierarchy of problems and causes, well-known quality management tools are used, for example, “Ishikawa chart” (“fishbone graph”) and “Cross-diagnostics” [15, p.28]. We shall consider the application of “Problem Tree” on the example of one of the socio-cultural risks of digitalization, taking into account possible scenarios for the development of events in the aspect of social construction – “Culture virtualization” [16].

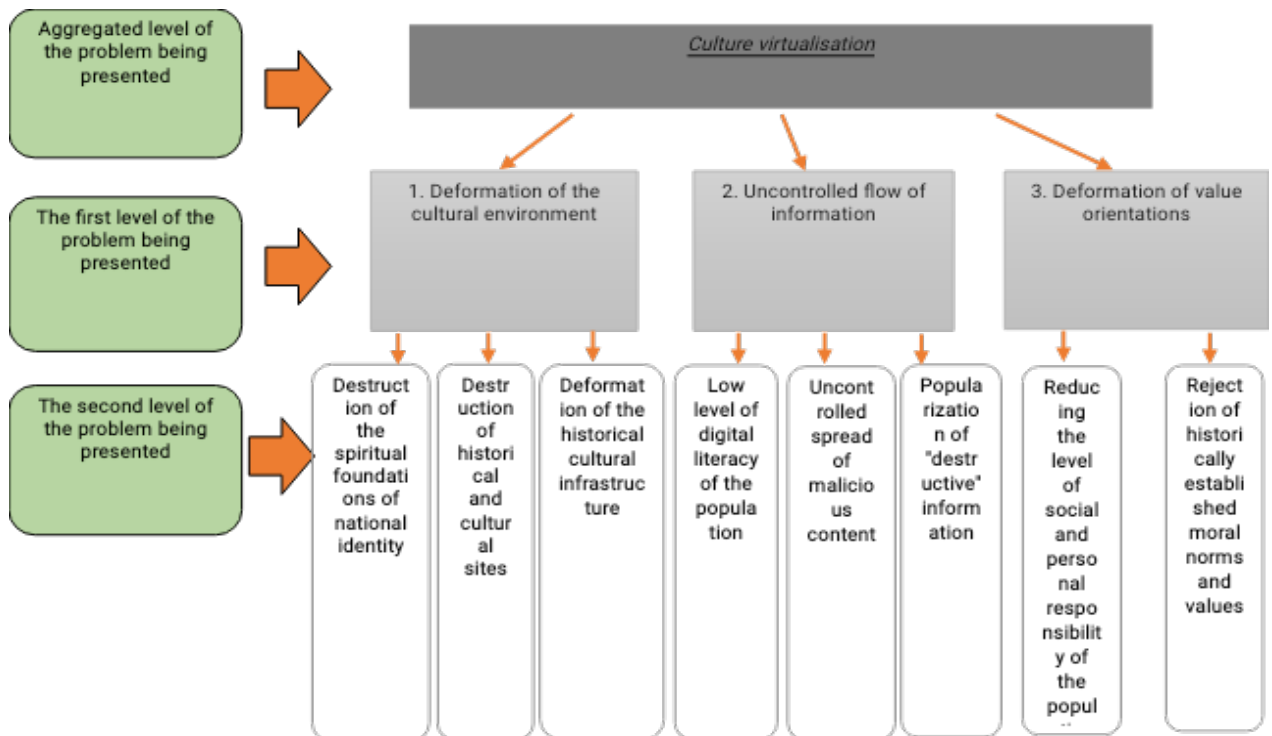


Fig.1. Problem tree of potential digital risks “Culture virtualization”

## Conclusion

Summing up, we can make the following conclusions:

- 1) the issue of digital development is one of the most popular in modern technological discourse and is reflected in a variety of discursive spaces;
- 2) a significant influence on the representation and social construction of digital reality images is exerted by their temporal coordinates, described in the categories of real experience and the horizon of expectations.

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