

# Reflexivity of the society, social responsibility and hygiene of culture as a part of artificial intelligence functionality during the period of techno-social singularity

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**Abstract:** We propose to coordinate research/development in the field of "strong" artificial intelligence (AI) belonging to Top-Down AI and Bottom-Up AI approaches. The basis of coordination is the imperative: action or inaction to prevent the world from destroying itself. Techno-social singularity is a threat for the existence of developed countries of European civilization. It has given rise to the irreversible depopulation of these countries under the current way of life. Successfully overcoming this threat (as a challenge unsustainable to human intelligence) by AI will be proof of AI implementation.

**Keywords:** large-scale system, cultural unit, sustainable reproduction, procreation, strategy, methodology, strong artificial intelligence, Top-Down AI, Bottom-Up AI.

## 1 Introduction

The article has a conceptual focus. We propose to coordinate research and development in the field of "strong" [1] artificial intelligence (AI) belonging to well-known Top-Down AI and Bottom-Up AI approaches [2].

The basis of coordination is the axiological imperative: action or inaction "to prevent the world from destroying itself" (A. Camus). The investigation is carried out on European material. Techno-social singularity is a serious threat for the existence of developed countries of European civilization/cultural community - in the broad sense of these words.

Techno-social singularity is considered in this paper as a result of development of the category "technological singularity" [3]. This singularity has given rise to the irreversible depopulation of these countries under the current way of life. Successfully overcoming this threat (as a challenge unsustainable to human intelligence) by AI will be proof of AI implementation. It is interesting to compare this feasibility criterion of the idea of artificial intelligence with A.Turing [4] and J. Searle criteria ("Chinese room" [1]). Failure will provide the remaining inhabitants of the planet with the possibility of further experiments.

## 2 Materials and methods

As stated above, the singularity of the current moment is sometimes believed to be technological [3]. We believe that it is important to pay attention also to its economic and social dimensions. The laws of the market economy force economic entities to develop the technologies available to them with maximum haste, including Bottom-Up AI technologies: system and software engineering, including involvement of Big Data technology, engineering of requirements with the prospect of its automation, the problem of adequate correspondence of texts written in natural and artificial languages, etc.

Movement towards realization of certain aspect of AI cannot be stopped. The scale of situations covered by AI management technologies has the potential for growth trends. Without monitoring, forecasting and assessing global impacts, this is becoming increasingly dangerous.

### 2.1 AI level of the forthcoming research

The regulatory function of the State could help coordinate these efforts. However, this issue is dealt differently in different countries. Competition between States (countries) should not be forgotten. Supranational organizations could help solve the problem, but their role in the modern world is not growing.

Social computing develops as a relatively independent area. Applying the Bottom-Up AI aspects listed above to social reality and its human-populated organizations is on the agenda.

Coordination of Bottom-Up AI and Top-Down AI trends, ideally capable of generating sustainable or directed development of civilizational/cultural community, in the conditions of a market economy is still limited to a "reference inclination". Discussions of opportunities to institutionalize social responsibility of business are constantly held. The requirements for the overall architecture of this institution and the necessary amount of social responsibility are still unclear.

The above-mentioned techno-social singularity moves the inhabitants of the human-populated systems into a "catching-up understanding" mode. This is clearly evident in the development of computer science and mass communications. Every single innovation introduced by a market entity is a quite rational artificial phenomenon. However, a huge number of such innovations together acquire the property of "secondary naturalness". So it becomes difficult for members of society to orient and to make timely decisions. We find ourselves immersed in the "digital jungle." The techno-social singularity precedes the eventual emergence of AI in the Bottom-Up AI paradigm. Development of AI in a market economy society is inevitable. Perhaps the social aspect of singularity contains potential regulators of technological progress. Here it is appropriate to recall the works of S. Beer [5, 6].

Expert perceptions regarding AI are mixed [7]. In this work we will first of all rely on the interpretation of A. Turing [4]. An important step on the way to it is the implementation of AI in the technical sense as a property of the system, allowing to break the barrier between automated and automatic (not specified final algorithm) functioning at least at some strategically significant intervals of its work. At this stage, the problem of AI ethics arises: "What are the consequences of AI creation for humanity?" In this regard, three laws of robotics by Isaac Azimov can be remembered [8]. Note that in order to ensure their implementation, it is necessary to predict the results of the actions performed with a large number of uncertain external factors. The question of the time horizon of the necessary forecasting arises. It has no final solution.

AI is an inevitable component of the digital economy. However, the demographic problem is wider than economic activity. In the process of demographic situation management it is necessary to receive feedback from the society, to create hypotheses, models of phenomenon automatically (or in automated mode), to give some operating signals to demography/economic system, receive responses, correct hypotheses, and repeat the cycle as many times as required. The demography/economic system is being continuously complemented.

### 2.2 Cultural level of the forthcoming research

In the 1980s the new stage of European development began. Total fertility rate of the main nations of the developed European countries fell below a homeostatic limit 2.17 and continues to decrease. If the trend remains, disappearance of the European culture owing to extinction of its carriers is inevitable. Total fertility rate of the peoples of traditional cultures surrounding Europe is much higher. Ways of preservation of the European civilization and cultural community are discussed in this paper.

We offer to use the following tools: 1) concept of large-scale systems; 2) concept of hygiene of culture; 3) concept of cultural unit; 4) concept of cybernetics of the third order.

The concept of methodology of cultural unit steady reproduction is the result of this work. It is the instrument of transformation of the current situation with the purpose of preservation of the European civilization and cultural community. It lies in line with the concept of cybernetics of high orders, but concerns first of all the structural organization of a global large-scale system.

The world is in a bifurcation point. If business as cultural unit realizes itself to be the driver of the European culture, then social responsibility transforms it in the direction of impact investing subordinated first of all not to receiving profit, but following the imperative "not to allow the world to destroy itself".

Otherwise business finally globalizes, loses reflexivity, becomes a structural analog of cancer tumor and sacrifices Europe in a pursuit of profit for the sake of profit.

## 2.2.1 The new stage of European and World development

Statistics shows that the new stage of development of the European civilization and cultural community came forty years ago. Its essence – accelerating demographic "retreat" of all developed countries of the European culture against the background of demographic expansion of the peoples of traditional cultures (Table 1).

Table 1 – "Average of children per one woman (total fertility rate) in some European countries during the period from 1921 to 1995" [26, p. 240].

Years	England	France	Germany	Italy	Spain	USSR/Russia
1921-1925	2,39	2,42	2,62	3,50	3,96	-
1926-1930	<b>2,01</b>	2,30	<b>2,10</b>	3,50	3,75	6,04
1931-1935	<b>1,79</b>	2,16	<b>1,84</b>	3,07	3,50	4,53
1936-1940	<b>1,98</b>	<b>2,07</b>	2,24	3,00	2,77	4,66
1941-1945	2,39	<b>2,11</b>	<b>1,90</b>	2,56	2,72	-
1946-1950	2,19	2,98	<b>2,07</b>	2,77	2,68	3,13
1951-1955	2,18	2,73	2,16	2,32	2,52	2,51
1955-1960	2,49	2,71	2,30	2,35	2,75	2,62
1961-1965	2,81	2,85	2,49	2,55	2,89	2,48
1965-1970	2,52	2,61	2,32	2,49	2,93	<b>2,02</b>
1971-1975	<b>2,04</b>	2,31	<b>1,64</b>	2,28	2,89	<b>1,98</b>
1975-1980	<b>1,72</b>	<b>1,86</b>	<b>1,52</b>	<b>1,92</b>	2,63	<b>1,92</b>
1980-1985	<b>1,80</b>	<b>1,87</b>	<b>1,46</b>	<b>1,55</b>	<b>1,86</b>	<b>1,99</b>
1985-1990	<b>1,81</b>	<b>1,80</b>	<b>1,43</b>	<b>1,35</b>	<b>1,46</b>	<b>2,10</b>
1995	<b>1,71</b>	<b>1,70</b>	<b>1,24</b>	<b>1,17</b>	<b>1,18</b>	<b>1,39</b>

"Note: From 1931 to 1950 – data on England and Wales, since 1950 – on the United Kingdom; data on Germany – till 1946 in borders of that era, further – in modern borders; across the Soviet Union – till 1950 in borders of that time, after 1950 – in modern borders of the Russian Federation" [26, p. 240].

The values of total fertility rate which are not providing a demographic homeostasis of indigenous people are italicized in Table 1. Total fertility rate has to be not less than 2.15 – 2.17 for simple reproduction of population.

The representation of civilization and cultural community in the world, eventually is defined by the number of its carriers. When this number is exhausted, the civilization and cultural community moves from vital space to museum. In fact, it will disappear even earlier as it will not be able to keep the territory of dwelling any more. Total fertility rate of the peoples of traditional cultures surrounding Europe is much higher than homeostatic.

The purpose of this paper is discussion of opportunities of preservation of the European civilization and cultural community out of any time-frames established in advance.

We see problem sources in conceptual breakthrough of the French Encyclopaedists of the 18th century. The slogan "Liberté, Égalité, Fraternité" was transformed over time. "Liberté" degenerated in egoism and permissiveness. "Égalité" turned into the formal relationship of a person with the law caused by a set of public and un-evident privileges. In such conditions it is strange even to speak about "Fraternité". The public time regulations were restructured. Broad masses received freedom to spend more and more time for earning money for satisfaction the individual requirements to the detriment of family relations. The material standard of living promptly increased in the developed countries and continues to increase. Egoistical bents prevailed. Family values receded into the background. Demography shows it with all possible evidence.

Alliances of states are in many respects dictated by momentary benefit. The strategy of benefit achievement operates geopolitical archetypes as required.

Information technologies are the edge of scientific and technical progress today. They change space of development of civilization and cultural community quicker than we are able to identify the changes [25]. In this space decentralization (i.e. the market) and centralization (i.e. planned managing) traditionally confront [5, 6, 16, 17].

One of fetishes of modern economic activity and policy is management-governing-control. Some administrators believe that by means of advanced administrative technologies it is possible to achieve any goals. They demand to develop such tools in the shortest possible time. One of the ways to increase management efficiency is "sublimation" to the field of cybernetics of high orders [9 – 14].

Let's remind that there are two inseparably linked aspects of development of scientific knowledge: ideographic and nomothetic. Ideography is understood as work with specific features of some units inside class borders. Nomothetic is generalization and establishment of laws, including borders of classes into which research units are subdivided. Theory of large-scale systems is an example of a nomothetic research. We believe that the model of the civilization and cultural community adequate to present challenges, is large-scale system including subsystems of ecological, cultural-integrative, procreation-demographic, social, and economic scales. It is at the same time the subject creating and realizing strategy of development and the object in relation to which this strategy is implemented [18]. Can business appear to be required subject and what its social responsibility mean in this case [19]? It turns out that for attraction of additional symbolical

resources it is necessary to expand the borders of responsibility imputed to subjects of all levels from social area to sociocultural area.

Here we approach the framework limiting contents of the present article. In the article we discuss responsibility which can motivate business to participate in search of ways of preservation of the European sociocultural community and also in realization of coordinated actions directed to an exit from current situation. The preference of such line of action can be caused not by racist beliefs, but statistical data provided in Table 1 and more or less mass self-identification of concrete subjects of business in cultural or/and activity aspects.

Culture is relatively independent from economic activity. It also becomes the base of reflexive self-understanding of sociocultural community. Its protective reactions are consolidated in the system of preventive preferences. Cultural projection of these manifestations of protective reactions become consolidated today in a new intellectual discipline – hygiene of culture. The concept of this discipline (the sources of which are traced in antiquity) for the present historical period was formulated by professor I. Magyari-Beck [15, 23, 24].

Hygiene of culture is a trans-discipline subject. In order to consolidate its diverse aspects some methodological tools are needed. The hygiene of culture will be able to carry out its practical role on preservation of the European civilization-cultural community only if a wide range of practical disciplines are included in it.

Thus, the hygiene of culture has three components. It includes methodological, scientific and practice-focused levels. V.M. Rozin distinguishes three types of methodologies [20].

1) "Pan-methodology". Its essential sign is its claim for generality. It is so called System-Thinking-Activity (STA) methodology developed by Moscow methodological circle (MMC) under the leadership of Russian philosopher and methodologist G.P. Shchedrovitsky [21, 22].

2) Private methodologies. Essential sign is their service function for various practical and scientific disciplines. They have roots in antiquity and also in R. Descartes's works.

3) "Limited liability methodologies". It is supposed that this type of methodology applies for setting essence of thinking, but only in the limits set by regularities of this or that culture, this or that type of person. The limitation of responsibility means that the methodology should not define human life completely because it is impossible. Life, being defined not only by logical regularities, is richer than any scheme or set of schemes. However, this type of methodology makes feasible contributions (along with philosophy, science, art, ideology, religion, esoterics, etc.) in structuring, designing of life and thinking.

We suggest to add to the above-stated classification of V.M. Rozin the fourth type: methodology of a cultural unit. The methodology of cultural unit applies not for total coverage of existence of this system but only on ensuring its reproduction. Therefore, it is rather far from "pan-methodology". It differs from the last in also axiological loading. This type of methodology is declared for the first time. Reproduction is a necessary prerequisite of development.

### 2.2.2 The concept of Cultural Unit

In anthropology the concept "cultural unit" is used. It designates the social integrity distinguishable on a cultural background. Concretizing the term "social integrity", we will not distinguish it from cultural-civilization community. Let's note also relationship of this concept with "local civilization" of A.J. Toynbee.

We believe that cultural unit is a large-scale system (see Picture 1). On the basis of the analysis of empirical material we suggest to distinguish five classes of the systems corresponding to the following spaces: 1) economic activity, 2) social activity, 3) history space, 4) space of cultural integration, 5) planetary space.

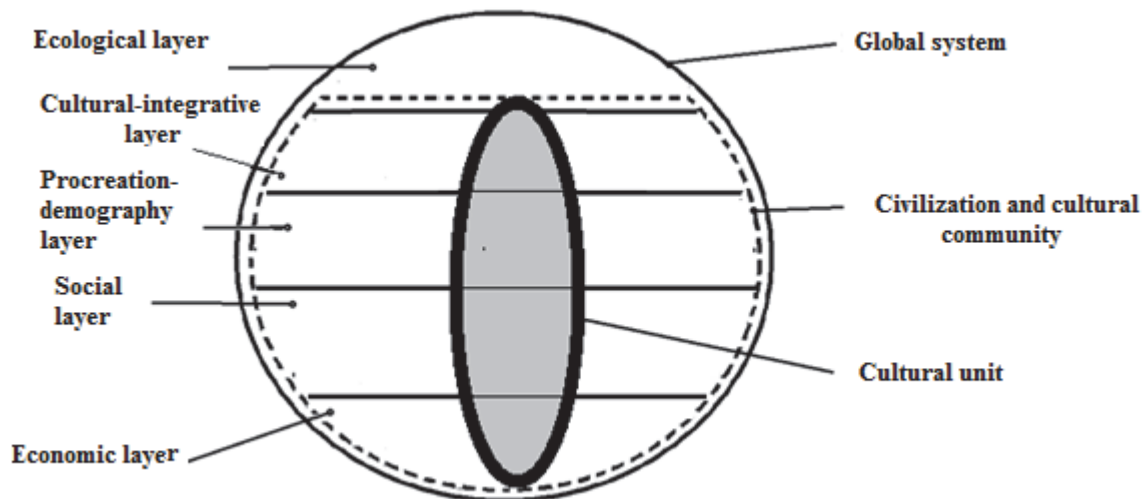
The criterion of applying of a system of activity and subject involved in it to this or that class of listed systems – is a set of consecutive answers to a number of questions: whether achievement and/or maintenance of the following type of solvency enters the purposes of the considered subject: 1) economic solvency, 2) also (in addition to previous) - social solvency, 3) as well procreation-demography solvency, 4) as well solvency of cultural integration, 5) as well ecological solvency.

We understand solvency as ability of the subject to provide the course of basic processes during unlimited time and to support existence of the providing structures corresponding to the considered aspect of an aggregate large-scale system.

The large-scale system is a set of two or more "drawn on each other" subsystems belonging to various classes of the offered qualifier. The global system covers all five called classes, "layers" or spaces.

The set of four listed layers of a global system is designated in Picture 1 as culture in general. The cultural units updated at the current stage of development of society can be distinguished in it for the purpose of analysis. It can be, for example, local civilizations, youth and other subcultures. Cultural units can interact on each of the levels given in the scheme in any combination. We assume to solve problems of the European culture, for example, the demographic problem designated above by creation of special configurations of cultural units.

Thus, we consider cultural unit as an object of research and the subsequent transformation or/and protection.



Picture 1 – Cultural unit as a part of a global system

### 3 Culturological and technocratic results

The structure of society can be presented as a set of social bodies. Social body is a set of the communications and human relations and also of these people. Each of us can identify oneself as an element of some set of such bodies. Some elements are enclosed in others. It is important that this set has no discretization of a nested doll in which it is always possible to specify an obvious kernel. The discussed set can be compared with a bulb in which the kernel in the undressing procedure is never found. Neither the Philosopher, nor the Sociologist, nor the Psychologist manage to answer – where is "Me" and where are my borders?

We suggest the reader to move in this layered cover, undertaking the sliding or discrete self-identification. Thus it is possible to try possible types of relations between an internal part of a "bulbous" cloud and external part. Human communities (these or those "cloudy" structures) – depending on the direction of a look of the researcher – can be ranked as actors to whom the researcher, being identified with any community, attributes some purposes and opportunities concerning environment, or to the passive environment with which actors do something in their purposes and owing to their opportunities.

We suggest to specify the type of relations of the actor (as the "cloudy" structure of this or that volume and level) with other layers of the same structure (as the environment).

At a look from "outside" and emphasis of inanimate aspect of external layers of "cloudy" structure the discussed relations have ecological character. At a look from external contours of "cloudy" structure of society "inside" and/or recognition of the live beginning of society these relations gain qualitatively different character which we call hygienic.

From the point of view of the technocratic paradigm, the development of AI appears inevitable. However, even strong AI cannot currently exist and develop autonomously. It parasites on a substrate that includes human population and digital economy. This substrate produces techno-social singularity.

### 4 Discussion

The work provides conceptual and factual material to fill the gap between the results of the slow evolution of society, obtained with the participation of natural intelligence of human and expressed in categories of culture, on hand, and the claims of rapidly developing strategies and technologies of natural intelligence, on the other. Without filling this gap, human development in the age of techno-social singularity seems flawed.

### 5 The findings and conclusions with thoughts and suggestions for further research

Today the main issue of the agenda consists not in explaining the world as philosophers of antiquity believed, not in changing it what Marx called for, but in returning the world to limits of an evolutionary corridor and in holding it inside these limits. We believe that it is the basic European value and the only possible way of existence at the new stage of world development. For its preservation it is necessary to increase reflexivity of the society, to transform social responsibility of business and other capable cultural units and to develop transdisciplinary researches on crossing of cybernetics of high orders and hygiene of culture.

Perceptions of the scope of AI conception and its very existence now fluctuate widely. This article proposes a way of included research and included practical project work using AI aimed at overcoming the depopulation challenge for developed European countries. It has not been possible to overcome this challenge by all means used (without AI). Thus,

the positive experience of solving this problem will be an argument for the possibility of implementing strong AI and even a concrete example of such implementation.

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