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Strategic Digital Reality Risks Management Technologies

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Abstract

A number of strategic risks are taken into account in the formation and development of computer reality. Moreover, we estimated that the possibility of implementing some risks and the likelihood of other risks are significantly underestimated. Nassim Taleb identified various risks as "Black swans" and "Mandelbrot Grey swans". They are characterized by power laws of probability density distribution, which makes their parameters difficult to predict. We find ourselves in a "fast world" extensively studied in overcoming the "barrier problem". Artificial intelligence systems are given "last decisions" based on risk results. This use of digital technology is unacceptable. LEM noted: "unheard-of fast cars make mistakes unheard-of fast," and the cost of an error can affect the fate of humanity too high. International control mechanisms are needed similar to those that in the XX century restrained the quantitative growth and qualitative improvement of nuclear charges and their means of delivery, as well as to create such weapons. The risk analysis is based on the theory of the humanitarian and technological revolution associated with the transition from the industrial to the post-industrial phase of civilization development. There is a gradual transition from the world of things to the world of people. A bifurcation point is set here, after which different trajectories are possible. One of the further trajectories in the terminology of J.Attali is associated with the era of hypercontrol and the formation of hyperimperia. The founder of the Davos economic forum K. Schwab considers this scenario as the main one. The analysis of the trajectory clarifies the huge risks on this path, as well as the need for efforts to preserve the gains of culture and avoid this scenario. Within the framework of the risk management paradigm, specific measures are proposed to avoid many negative consequences of the introduction of digital technologies.

Keywords: digital reality, risk management, strategic deterrence, humanitarian and technological revolution, digital education.

1. Introduction

Currently, all risk management technologies are of strategic importance. They provide an opportunity to objectively, to the extent that it is possible at the current level of knowledge, to assess the danger of the proposed projects and decisions. In the economy, risk management procedures save money and resources and increase the

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resilience of economic agents to external adverse circumstances. World statistics show that every ruble invested in forecasting and preventing disasters and catastrophes can save from 10 to 100 roubles, which would have to be invested in the elimination of already occurred disasters, and in Russia, the rouble can save up to 1000 roubles. It is the risk management technology, combined with the idea of guaranteed mutual destruction in the event of a large-scale nuclear war that has provided strategic stability and allowed us to avoid world wars for the past 70 years.

These risk management technologies are quite simple and clear [10]. For a proposed project or management solution, a functional S is calculated, called the expected utility where we find the total number of options for the events under consideration, the probability of the implementation of the scenario, acquisitions and benefits, or, respectively, damage or loss in this case.

$$S = \sum_{i=1}^{n} p_i x_i \tag{1}$$

If we consider several options, then we choose the one in which the expected utility is maximum.

Risk management technologies in the selected option are associated with bringing the object in the selected action option to the states,

– N which changes, that is, the most dangerous, adverse scenarios are excluded; p_i — measures are being taken to change the probability of possible undesirable scenarios; x_i — possible acquisitions increase and losses decrease for the scenario. If necessary, the possibilities of 'improving' several options are considered — $1, \ldots k$, then they are compared again based on the ratio (1) to choose the best one.

Since the XVI century, this method of action, associated with an objective assessment of the expected utility, seems to be the most reasonable. However, research shows that very often decision-makers act differently. They evaluate the subjective utility and instead of ratio (1) explicitly or implicitly calculate another functional.

$$\tilde{S} = \sum_{i=1}^{M} f_i \left(p_i, x_i \right) \cdot g_i(x_i) \tag{2}$$

Here M is the number of scenarios that are taken into account $M < N$ and at the same time often ignores especially 'unpleasant' or 'shocking' possibilities; $f_i(p_i, x_i)$ is subjective probability that reflects our idea of what 'may happen in fact.' Practice shows that $f_i \left(p_i, x_i \right)$ can be very different from p_i. Directors and Executives, as a rule, ignore what may happen with a lower probability 10^{-5}, as well as what is not associated with too large losses x_i, $g_i(x_i)$ a subjective view of the benefits and losses. Psychologists say

that many people tend to pre-reduce the expected losses and exaggerate the possible benefits.

2. Methodology and Methods

Interdisciplinary approaches allow combining various scientific achievements to create more accurate strategies for the future.

Interdisciplinary approaches allow you to think and get results over the boundaries of individual disciplines and traditions, and help break down barriers that prevent you from moving forward. Currently, the NBIC (Nano Bio Info Cognito) technology platform is being developed on a broad front, where interdisciplinarity is inherent, and the combination of nanotechnologies and biotechnologies with information and cognitive technologies creates a new quality.

In recent years, risk management issues have again been in the spotlight. The concept of "black swans", put forward by Nassim Taleb, played an important role: "What we will call a Black Swan (with a capital letter) is an event that has the following three characteristics. Firstly, it is abnormal, because nothing in the past has foreshadowed it. Secondly, it has a huge impact force. Third, human nature forces us to come up with explanations for what happened after it happened, making the event, first perceived as a surprise, understandable and predictable" [9: 10].

In mathematical language, such "swans" are usually associated with power-based, non-Gaussian probability density distributions, in which very rare catastrophic events of a giant mass headquarters cannot be neglected (p_k is very small, but $p_k \cdot x_k$ comparable to the entire sum of S).

Finally, there is the possibility that we are dealing with non-reversibly changing systems in which both pi and xi change over time, or both p_i, x_i, and n have to be revised in the course of development p_i, x_i, and N. The forecast is a thankless task, but very useful. Unfulfilled forecasts become a reason for reproaches to scientists, and few people often know about fulfilled predictions and averted dangers. On the other hand, the age-old wisdom says: "he who is warned is armed." Therefore, unfulfilled forecasts may be more valuable than fulfilled ones. In this context, we will consider the risks of the formation and development of computer reality.

This means, in the language of risks that the field of possibilities turned out to be wider, along with N scenarios that were evaluated and calculated, events went on $N + 1$, which was previously unknown. In predicting and constructing possibilities that have not been dealt with before, science fiction and futurologists have an advantage

over scientists who strive to stay on the basis of facts and existing knowledge and experience.

In addition, Taleb considers another option: "Mandelbrot's Gray swans are Black swans that can be expected to appear (earthquakes, bestsellers, stock market collapses), but whose properties are indeterminate and the parameters are incalculable" [9: 470].

Machines count and act, if they are allowed to, much faster than humans. Many analysts say that global computer networks lead to the emergence of a "fast world" in which it is the person who will be the slowest, most unreliable and vulnerable link. This is shown by the evolution of exchanges in which Internet brokers have displaced people.

The space Internet is actively developing, which will allow you to react to what is happening even faster and will give you broadband Internet access from anywhere on Earth. The HughesNet and ViaSat satellite systems are in geostationary orbit (35,000 km and 600 MS delay); the GPS, GLONASS and Galileo navigation systems use an average earth orbit (2000 km and 140 MS delay). The Starlink and OneWeb satellites are focused on orbits of 335–346 km, as well as on network technologies (we are talking about tens of thousands of new satellites in orbit) and reducing the delay to 10 MS. This level is sufficient for driving unmanned vehicles and many other technical systems using the space segment, as well as for a number of other applications [4]. A person reacts to what is happening about 100, or even 1000 times slower.

There is a desire to use opportunities from digital reality in the military sphere. Many emergency situations related to strategic nuclear forces (SNA) are described in the literature, which, however, did not lead to a disaster. First of all, this is due to the wisdom, caution, and common sense of the people in the SNA management circuit.

We see a different trend at the present time, aimed, in the end, at displacing man from the contour of strategic forces. After information about the missile attack, political leaders have about 45 minutes to make a decision about a retaliatory strike.

After the US withdraws from the Treaty on medium-and short-range missiles, this time will be reduced to 9 minutes. Advanced weapon systems will further reduce this time. And in the end, the machines will respond to information about the attack in the "fast world".

A dangerous illusion arises in people, "that the machines will understand everything better than us." If, as Putin said, they will have two minutes for the flight time, then in two minutes you can analyze a lot and understand that this is an attack, or a distraction, or a mistake.

Polish science fiction and futurologist S. LEM foresaw and described the current situation and the risk associated with it ("Black Swan" in the terminology of N. Taleb). Measures aimed at preventing the transfer of "latest solutions" to the machine level can be called the "LEM barrier". In the 1980s, the writer published a humorous essay-memoir of a historian from the distant future about the development of weapons systems of the XXI century. This essay turned out to be prophetic in many ways. To quote a fragment of this text: "Scientific and technological progress was fraught with a special kind of paradox: the more advanced it generated weapons, the more their effectiveness depended on randomness, not amenable to accurate calculation... Emerging one after another new weapons systems were characterized by increasing speed, starting with decisions (to attack or not to attack, where, how, with what degree of risk, what forces to leave in reserve, etc.); and it was this increasing speed that brought the randomness factor back into play, which is fundamentally impossible to calculate. This can be expressed as follows: systems that are unheard of fast make mistakes that are unheard of fast." [3: 540, 551]

In the world and in Russia, an attempt is being made to dehumanize and dehumanize people through the mechanization of education. In the current crisis situation, the concept of "Superman", transhumanism, appears again and again in society, in which the current person is only a "draft" of the "immortal cyborg" that will soon form the basis of humanity.

The emergence of such ideas is not surprising and extremely dangerous. In a post-industrial society, most people don't have jobs. In the framework of the capitalist system, this considers man only as an economic agent, consumer, etc.

The Creator of Cybernetics N. Wiener wrote in the 1950s that as a result of the digital revolution in society there will be a huge number of "extra people" who have no place in the current social system.

The future that he foresaw has come. American entrepreneur and engineer Elon Musk writes: "automation will be followed by an avalanche of cheap goods and services, but you need to understand what to do with the purpose of a person. How and what kind of person will matter if the value for many is inextricably linked to their work? If you don't need your job anymore, what's the point? Therefore, the future is a serious social test for us" [1: 12]

The President of NRC "Kurchatov Institute", corresponding member, made speech to the Federation Council on 15.09.2015. M. I. Kovalchuk of the Russian Academy of Sciences stated that today there is a real technological opportunity to create a fundamentally new subspecies of Homo Sapiens — the service man. "The property

of a population of office people is very simple: limited self-awareness and this is regulated cognitively in an elementary way, as we can see, this is already happening. The second thing is reproduction management, and the third thing is cheap food, which are genetically modified products. And that, too, is all set. This means that there is actually a real technological possibility of removing the service subspecies of people. And no one can prevent this, which in fact happens, and we must understand what place we can take in this civilization" [1: 158, 159]. In other words, we are talking about creating "zombies", "people who are not sorry", about a new slavery.

But in order to move to the "new slavery" and accept it, it is necessary to break the system of education and upbringing and with it the meanings, values, ideals, culture, morals, and humanize people.

The simplest way to do this, as in one of Lem's stories — is to make people behave like robots or consider themselves algorithms, as suggested by Yu. N. Harari [2].

Assistant to the President A. R. Belousov speaks about the largest social shift that ensures the formation of a new type of person — a virtual person.

The head of the Agency for strategic initiatives, Dmitry Peskov, expressed the essence of the national technology initiative in 2016 as: "technology of free sale of meanings and security in the world market". He cited pokemon as a role model and the company Nitendo, which released this game and earned more money on it than the Central Bank prints in a year. The company's capitalization grew by $20 billion in 10 days. At the same time, the main focus should be on talents, we should "capitalize on these talents from childhood, turn groups of children into companies that develop technological solutions today and which are already able to grow tenfold in a year and capture world markets without any obstacles" [1: 279]. The spiritual and intellectual world, talents, meanings and dreams want to make a product, a capital...

In the famous book of J. Perkins "Confessions of an economic killer" have two main recipes for breaking up the country's economy and society. The first is to belittle and discredit all high meanings, values, and ideals. The second is to transfer all relations and agreements to the level of monetary settlements. After that, a lot of things will fall apart on their own. Many projects related to the "digitalization of education" follow this logic.

3. Results and Discussions

The use of smart phones places people in a digital reality. People post their events and receive messages on social networks. Smart phones have led to a run-of-the-mill

parent-teacher meeting, installing a new fence, or failing to pay a premium generating hundreds of messages. The world is becoming more extroverted. A meeting, or matinee is immediately photographed, recorded, and information about them is sent out. We all became "a bit of a journalist," according to Country leaders' blog and comment on themselves.

Psychologists have shown that a person can communicate meaningfully and creatively with 5 to 7 people, with others either stereotypically or indirectly. But analysis of social networks has shown that a significant portion of their users have hundreds or thousands of "friends" and seek to get as many of them as possible. At the same time, communication, of course, is simplified — the greeting is often reduced to a picture, and the letter is provided with emoticons to make it better understood. Facebook has a "population" of 1.4 billion people, Twitter — 646 million, and Instagram — 152 million. [7]

The book by V. V. Mironov [5] traces the characteristic pattern of the Russian history of reform-counter-reform — re-reform. In the course of counter-reforms, the valuable and important things that were destroyed during the reforms are often restored. Apparently, something similar will happen with Russian education. A number of leading teachers and school principals set themselves the task of bringing the current level of training of Russian schoolchildren to the Soviet level. Other teachers say that it is worth returning to the textbooks of Kiselev, Peryshkin and Kikoin. A very successful project was the reissue of the "Stalin's primer", props and other textbooks of that time for primary schools, implemented several years ago using the technology of "crowd funding". The money for the project was raised surprisingly quickly. In the end, it's not about digital or any other tools, but about the people who use them. This is all the more true in the era of the humanitarian and technological revolution.

Indeed, the Internet's Creator, Tim Berners-Lee, envisioned a worldwide computer network as a place where individuals would be free to share ideas and information without being constrained by government or other structures. Almost 30 years have passed and now he states: "We have lost a sense of personal control over what expanded our rights and opportunities. The power of the Web was not taken away or stolen — billions of us gave it away every time we signed a user agreement... Facebook, Google, Amazon have now monopolized almost everything that happens online, from what we buy and read to what we love. Together with a handful of government agents, these corporations are able to track people's actions, manipulate them, and spy on them in a way that no one could ever have imagined" [6: 17].

The Internet can be a source of profit, a battlefield, the abode of computer viruses, worms, and logic bombs. Conceived as a platform for an objective and honest discussion, the Internet is becoming different: "Trends are changing. Leaders of digital platforms are already discussing in unison how to reduce the negative impact of algorithms on public life and psychological health of people — how to deal with lies, aggression and senseless loss of time in Internet networks' [6: 15]. Psychologist O. Lobach drew attention to a new trend: "trolls (those who mock and profane the discussion) are leaving, and bullying is becoming widespread. For those who poison, an evil joke is no longer in honor — it is a serious, big real war" [6, p.15]. In place of trolling comes bullying... the Internet can become the most important weapon of psychological warfare. We can expect that thanks to artificial intelligence, computer simultaneous translation will appear quite quickly, and there will be no language barriers. This can dramatically change the Internet space, making it the scene of a clash of civilizations.

4. Conclusions

The risks, dangers, and threats of digital reality need to be taken seriously. Otherwise, they can lead to disasters of various scales. But you can look at it from a different point of view. These risks are obstacles, challenges, and sources of problems. However, successfully overcoming these obstacles can make us stronger, wiser, and more far-sighted. Let's hope that we will succeed.

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