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CIVILISATION PRINCIPLES OF TRANSFORMATION OF VALUES OF ECONOMIC AND SOCIETY DEVELOPMENT UNDER THE CONDITIONS OF ARTIFICIAL INTELLIGENCE EXPANSION[3]

The article explores theoretical and methodological issues of defining the essence, functions and role of civilisational principles in the assurance of centripetal processes of restoring key forms of human civilisation activities, highlighting allowable limits of constructive transformation of values of economic and social development. The article pays great attention to economic and philosophic comprehension of principles and forms of the origination of a brand-new reality in the system of social and economic relations under the influence and pressure of the modern technological revolution. It reveals the particularities of methodological approaches to the essence analysis, trends in the development of new forms of human functioning in the context of Revolution 4.0, the digital economy and the active deployment of artificial intelligence.
Keywords: digital economy; artificial intelligence; nanotechnological revolution; human-centred development paradigm; transhumanistic paradigm; development benchmarks; humanitarian constant; framework for ethics principles; identity transformation, labour.
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1. Problem Definition

Rapid globalisation of economic and social systems and the same rapid development of Industrial Revolution 4.0 actualise such a kind of social needs as the preservation of fundamental civilisational principles of functioning and development of humankind – a unique, socially defined and consciously formed entity of reproduction and evolution of social and economic relations, which is able to perceive, comprehend and transform the world around in their interests. Satisfaction of such kind of needs in the context of dualism

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establishment of the paradigm concept of strategic ways and conditions of social development, human development causes the urgent necessity to implement an efficient human-centred economic policy (Breque, Lars, Petridis, 2021). However, the theoretical model, platform, strategic goals of this policy are impossible without comprehension and adoption of principles of coordinating civilisational achievements and social development benchmarks with systematic challenges of scientific revolution manifested in artificial intelligence, technological method of production based on the digital economy, problems related to co-existence and interaction between people and the smart machine in all spheres of social life. A complex of such challenges and problems sparked a deep interest in the search for answers to some of the issues set by contemporary growth.

1.1. Research goals

Modern competition for the future is the competition of new quality, featuring the triunity of competition a) for positioning the present in the future, b) for positioning the future in the present, c) for positioning the future of certain objects in the future by means of the future. Some scientists stress that "…beyond active and new intensive exploration of the future, comprehended scientifically supported complex approach to future building, targeted allocation of resources for future exploration, the humankind is destined to disappear, even in case of keeping sufficient living conditions on the Earth (Selivanov, 2016).

Such understanding of principles of comprehending the depth and complexity of problems faced by globalised society in the midst of rapid qualitative changes in all elements of the technological method of production and, consequently, in the system of social and economic relations allows us to pointedly define the *key goals of our research*. They include, firstly, the theoretical and methodological rationale of the necessity to preserve and develop in the future established in the present civilisational principles and benchmarks of the existence of people and humankind as a unique form of biosocial organisation of society as a living, creative and passionate body. Secondly, to determine and justify the necessity to set up substantial basics of civilisational principles of the new technological age, which are imperative in the context of manifestation and development of artificial intelligence role.

1.2. Civilisational principles of the new technological age as a research goal

In particular, positioning the future in the present allows us to suggest the analysis and rationale of the below-listed key, in our opinion, *civilisational principles of the new technological age as a relevant scientific problem and goal of future research*:

1) recognition of the leading role of people in their and social relations with artificial intelligence;
2) establishment and development of the culture of communications with artificial intelligence based on cultural imperatives and cultural standards that define the rules based on the philosophy of priorities and values, which ensure the widest opportunities for social development and personal advancement in the new architectonics of subject-

object (or, in case of recognising the artificial intelligence's right to the subjectivity, subject-subject) relations;

3) cultural dualism when the conflict between traditional and new cultures of economic relations reduces to a minimum;

4) the equal access to the field of labour for all people who get constantly possibility to improve their skills. Remarkably, automation in new technologies and AI-related fields must be deployed with the creation of new workplaces with labour-intensive tasks. Types and areas of labour activities are defined by the consensus, which fundamental principles include the freedom of access to labour for each person of working age and are defined by society;

5) adjusting the economic policy of countries to adapt and take into account the diverse interests of society, people and businesses, to social stabilisation and consensus in the conditions of the AI-technologies deployment model of the digital economy;

6) ensuring human-centrism as a critical principle in the value-oriented development of society;

7) mitigation and minimisation of social and economic inequalities and colossal stratification of the population by income, by identifying additional opportunities, modern socio-economic policy tools;

8) preventing the subjugation of human being by technology, but on the contrary "freeing" man from excessive work, creating conditions for creative development of man, revealing his intellectual and creative potential to the full extent.

We believe that only the comprehensive implementation of specified goals of research and the research system will ensure, at theoretical and practical levels, positioning of the future of certain objects in the future by means of the future, which is definitely a crucial condition for preserving and developing human civilisation in its diversity and uniqueness.

2. Analysis of Recent Publications

In the context of the rapidly increasing diffusion of traditional and digital forms and methods of managing economic processes, processes of creating economic and public benefits, there are fundamental, not always predicted changes in the architectonics of social and economic relations, in the interaction between an individual and artificial intelligence, which sparks an obvious interest of researchers in defining the essence, trends and long-term consequences of these trends for certain countries and regions, globalised society, human civilisation in general. Therefore, we can see an increasing number of publications containing thoughts, generalisations and forecasts concerning the prospects of the further destiny of people and humankind in a brand-new globalised social and technological system.

One can distinguish several areas of scientific thought development among such recent publications in terms of content. Firstly, it is an area whose representatives explore innovative and technological changes, characterising substantial forms and development trends of the

nanotechnological and digital revolution. Authors and publications in this area include, for example, E. Drexler (2014), Alec Ross (2017), John Brockman (eds., 2017), Martin Ford (2016), John Markoff (2016), Klaus Schwab and Nicholas Davis (2018), Ma Huateng and others (2019), Viktor Tarasevych (eds., 2021), Scheer August-Wilhelm (2020).

Another area of research on trends and long-term consequences of the digital revolution in all spheres of economic and social life is related to the analysis of challenges, contradictions and risks that occur and will grow in the future, affecting the character of transformation of value-based principles and values established in society as part of human civilisation evolution. It is, firstly, an exploration of the causes and institutional forms of paradigm dualism in approaches to the understanding of the nature and role of processes taking place in the globalised society. Secondly, the analysis of the efficiency of conceptual models of economic policy aimed at creating conditions for the widest application of artificial intelligence. Thirdly, the focus is on social and economic problems related to the development of new architectonics of the labour market, employment forms, increasing inequality and unfairness in revenue distribution, etc.

It is worth mentioning the following authors of recent publications that deeply reveal the above-said problems and give theoretical and practical tips on solving these issues. For instance, Jeffrey Sachs (2012) says that "the global market economy should have humanistic goals. It cannot be considered as a goal in itself." The most important thing stressed by J. Sachs: "The humanity principle requires us to respect each other in the context of updating and recognition of the priority of the value of people's common destiny and their common hope for dignity, solidarity and sustainable development." (Sachs, 2012, p. 241).

Similar opinions are expressed by many well-known researchers, including K. Schwab (2018); A. Greenfield (2018); A. Atkinson (2018); D. Rodrik (2019); J. Wajcman (2019); Y. K. Zaitsev, O. M. Moskalenko (2018, 2020); Ph. Van Parijs and Ya. Vanderborght (2020); M. Mazzucato (2021); A. Banerjee, E. Duflo (2021); P. Collier (2021).

It is worth mentioning that in the publications of almost all the above-said authors, the refrain is the thought that the principles of the transhumanistic development paradigm cannot function in full force while the economic policy is established by people and for people. It is referred to the replacement of human being with a new kind of employee – homo roboticus, as the latter is non-socialised and won't require social equality, social fairness, etc. According to the majority of researchers, the transhumanistic paradigm of economic development could become priority-oriented only when one fundamentally solves such urgent and complicated political and economic problems as the steady growth of satisfaction of basic needs of all individuals in each state, when the process of deep social inequality is stopped, when one determines tools for efficient protection of priority rights and advantages of the existence of human civilisation. In the examined historical situation (globalisation, Revolution 4.0, problem of dualism while selecting a development paradigm, etc.), it means that the economy and economic policy should remain human-oriented, prevent the removal of people from the system of social relations in favour of mass replacement of human beings with machines in production.

Therefore, one should preserve fundamental principles of the functioning of economic and social systems as the framework and development of human civilisation. Civilisation is

united by the task of establishing worldview possibilities for realising new challenges of progress, new demands and interests, and search for new opportunities for their harmonisation and implementation in the economic policy of states.

3. Research Methods

The authors use the methodology of political and economic analysis, an interdisciplinary approach and a partially analytical narrative to explain and deepen the understanding of the phenomena and processes of the transformation of the values of the economy and society at the current stage, which allows to reveal the existing contradictions of socio-economic processes under the conditions of the modern technological revolutions and expansion of AI-based technologies. On the basis of an interdisciplinary approach, an analysis of alternative points of view of researchers on the modern economic reality in its technological and trans-humanist transformation was carried out. The comparison of theoretical and practical views on the civilisation principles and values of the development of human being, economy and society is carried out at the intersection of economics, economic philosophy, economic history, and contemporary political economy.

4. Key Findings

4.1. An increasing trend in aggressive and individualistic atomisation of society and personality

In the context of systemic transformations[4] taking place in all life spheres of the contemporary globalised world affected by technological revolutions, we can see an increasing trend in aggressive and individualistic atomisation of society and personality. Such a situation keeps current the problem of investigating preservation conditions,

[4] *Transformation (Latin: transformatio*) is reformation, reincarnation, change in a type, form, properties of something. Such changes can result in the prolongation of functioning of existing economic systems, provision of conditions for their further upward movement, development of system's structural elements without changing its primary motivational levers, as well as the reduction in the period of their existence, acceleration of the shift to downward movement that eventually means system disintegration, its regression, chaos and origination of new ordering, a new living cycle of economic and social development. The contradiction contained in such dualistic principles of social system functioning is solved positively or negatively, depending on the level of civilizational resonance in subjective perception by science, businesses, authorities of challenges, requirements and demands caused by objective logic of the economic development and quality of public response to these demands and challenges. It is worth mentioning that such challenges for economy, society, human civilization caused by Revolution 4.0, nanotechnological revolutions in the 21st century, substantially surpass all problems of systematic social and economic transformations occurring until now in terms of complexity, irreversibility and potential negative (or positive) consequences, as they do not allow moving in an evolutional way. Contemporary industrial and scientific revolutions are actually revolutions, because the dynamic development of artificial intelligence multiplied by new forms of managing the economic reproduction process does not give much time for thinking, mistakes and their correction in order to preserve human civilization as a leading form of the existence of future society.

development of fundamental values of human civilisation functioning in the long-term period and, consequently, understanding the reasons and nature of qualitative changes in these values, potential positive or negative consequences of these values for the economic, social, mental and political development of humankind. Indeed, a range of challenges, risks and problems appearing almost daily in the midst of scientific, technological and socio-technological revolutions is becoming more complicated and unpredictable.

Even the most evident relevant problems such as, for example, the complication of social and economic relations between robotics owners; between owners of robotic solutions and financial capital owners; between employers and employees; between employers and Homo roboticus; between an individual, socialised society and Homo roboticus community; between hired labour representatives on the labour market and in economic activities; between business entities in certain areas, economic life spheres, and specialised Homo roboticus, etc., require immediate solving at the conceptual, theoretically methodical, philosophical, ethical, moral and practical levels of these issues: interests of what social groups, states, businesses will be dominant and prevalent?

Will one take into account the interests of all social groups and social classes in the development process of sectors and forms of artificial intelligence application? What are the fundamental differences between economic and social policy based on the human-centred paradigm in the context of Revolution 4.0 from politics focused on the implementation of the trans-humanistic paradigm?

Besides the solution of these key issues at the deep, fundamental, scientific level, impulsive steps forward in the application of advanced technological capabilities with unknown and even unpredictable social, mental, cultural and civilisational consequences can cause unexpected and, in certain circumstances, disastrous consequences. A lot of scientists believe that technological singularity implies the state and form of economy where people will no longer have to update computers, communication systems and robotic mechanisms. These machines and systems will be reprogrammed on their own. People won't understand how they operate, but everything will function independently (Blummart, 2019, p. 14).

Thus, currently, people successfully use the new analytical instruments and computer algorithms provided by the digital economy to develop new forms of business like ICO (Polishchuk et al., 2018) to find new ways of getting a profit, and a seldom person reckons on the technological singularity as a destabilised issue. So, modern economic philosophers believe "Future is Pandora's box that, unfortunately, one can't help but open." (Yemelin, 2017, p. 350).

However, by invading the unknown and uncontrolled, people, humankind and society enter not just an area of challenges but also an area of global strategic risks when any kind of deviation[5] for undefined reasons, or not stopped and corrected on time, can lead to unfavourable or even disastrous tragic consequences for human civilisation. Therefore, scientists think that "Predicting and detecting the main consequences of the triumphant progress of smart machines and rapid involvement of fascinated and subdued people in this

[5] Deviation [Latin: deviatio – de from + via road] is the deviation from the proper line, the intended course of a ship, plane, etc. affected by any external reasons (Spirkin et all, 1986, p. 148).

pride parade is, probably, the main task of contemporary human sciences." (Yemelin, 2017, p. 352).

Due to these circumstances, the primary objective of defining the essence, forms and boundaries of constructive transformation of values of the development of economic and social systems in terms of revolutionary qualitative changes in the 21st century are to highlight a range of key civilisational principles[6] of human society functioning, while shifting from industrial to post-industrial, information, systematically intelligent manufacturing involving artificial intelligence in particular.

4.2. Technological storm: why is society at the edge?

Philosophic comprehension of principles, laws, forms and prospects of the origination of a brand-new reality in the system of social and economic relations under the influence and pressure of wild waves of the nanotechnological storm causes euphory and thoughtless immersion into prospects and possibilities of this storm among many people. A significant part of society has no idea that we are standing on the edge of modern planetary Oecumene, and what is behind this edge is unknown! Besides, society has come to this edge without adjusting the internal system of values common to the whole society with its contradictions, challenges, paradigm contrast of interests, etc. Today, there is a great theoretical, methodological and paradigm discrepancy in the definition of value priorities of various social groups and classes. Reasons and subjective features are clearly defined by Wolfgang Streeck: "The fundamental asymmetry … is that capital claims for the adequate level of reward are considered as empirically necessary conditions for the functioning of the entire system and similar labour claims as sources of hindrances." (Streeck, 2019, p. 98).

At the same time, it is significant to mention that methodological principles of the human-centred paradigm of future personal and social development were established in this period (19th century). In particular, John Stuart Mill, in his essay "On Liberty" (1859), specified the key civilisational concept of social and personal development: 1) "the free development of individuality is one of the leading essentials of well-being;" (Mill, 2020, p. 57); 2) "the first in importance surely is man himself. Human nature is not a machine to be built after a model, … but a tree, which requires to grow and develop itself on all sides." (Mill, 2020, p. 60).

In our opinion, the scientist's approach to the understanding of the essence, functions and role of human being in civilisational development, firstly, laid the foundation for the understanding of the essence and advantages of the human-centred paradigm of economic

[6] "Principle [Latin: princium – basis, beginning] is 1) key initial position of any theory, science, etc.; governing idea, core activity rule; 2) internal belief, view on things defining the rules of behavior; 3) framework for the structure, functioning of any mechanism, device, equipment." (Spirkin et all, eds., 1986, p. 400). "Principle (Latin: Princium – beginning, origin, basis). Modern science describes the principle as a true provision of large generality. Informative principles are accompanied by methodological principles, for example, logical laws. In ethics, principles mean obligatory settings that people can rely on in their deeds" (Brockhaus, 2010, p. 267).

and social development and, secondly, remains relevant in the context of new challenges caused by Revolution 4.0, digital economy evolution, etc.

It should be emphasised that nowadays, in the midst of the rapid development of the nanotechnological revolution and ambiguous paradigm ideas of the definition of new civilisational milestones of globalised society movement (in particular, promotion of the transhumanistic paradigm in formation of theoretical, practical, political visions of human future), opinions of such scientists and like-minded fellows take on particular significance. They direct to the necessity to ensure contemporary transformation of civilisational development milestones.

Meanwhile, in our opinion, the transhumanist paradigm in the widespread intensive deployment of artificial intelligence technologies or other nano-, bio-, informational, revolutionary cognitive technologies is seriously contradictory and threatening. Let us recall that the essential characteristics of the transhumanist paradigm are directly related to the specific views of an influential group of scientists, politicians, and businessmen on the nature, capabilities, and functions of a person in a technologically united globalised society. In particular, representatives of this system of scientific and applied views reject religious justifications for human existence. They understand the development of scientific knowledge as a prerequisite for man's technological and biological improvement. The human individual is perceived not as the pinnacle of evolution but as an intermediate stage from a physical being to a being that combines informational cybernetic fields and a higher mind. Thus, transhumanism as a techno-economic development concept seeks to overcome man's physiological limitations and perceives the individual as a creature potentially unlimited in his development (Anikin, 2014). It could be perceived in different ways. The author's opinion boils down to the fact that the transhumanist development paradigm does not consider the civilisational principle of such a valuable reference point of development as human-centrism. The latter is a fundamental civilisational value. Therefore, it can lead to a person's loss of identity and individuality. So, in the 20th century, the transformation of economic and social development values were affected by the establishment of a competitive market of competent and highly skilled labour and the need for the mass use of creative, intellectual work.

4.3. Human-centeredness, freedom of choice, changes in values in a time of inequalities generated by revolution 4.0

Human-centeredness is about human development, which means expanding fundamental freedoms to do things people value. The ability of people to choose and do what they want and their goals are ensured by their income and wealth. Human development is determined not only by the choices people actually make; it is also defined by "the freedom a person has in choosing from a set of possible functions, which is called a person's capabilities". According to the Human Development Report 2019, inequality in the global world persists. Inequality in human development remains widespread. According to the United Nations' methodology, inequality is assessed according to two groups of opportunities: basic and improved (extended). The former include, in particular: early childhood survival, primary education, entry-level technology, and resilience to repeated shocks. Convergence appears in core capabilities. Those countries at the bottom with a low level of human development are

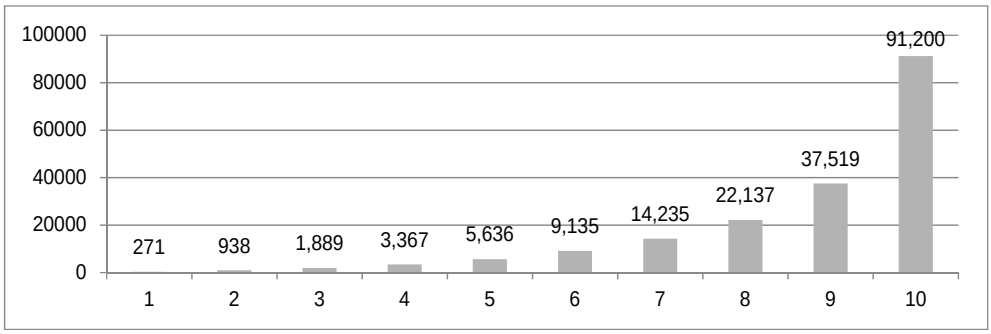
catching up with countries with a higher level of human development. Divergence appears in enhanced capabilities. Gaps in advanced capabilities exceed gaps in basic capabilities or are widening. Thereby, revolution 4.0 creates inequalities because of unequal access to new technologies and capabilities to get new skills to be engaged in types of well-paid labour-intensive work to be competitive in a labour market.

Continuing the analysis of the problems posed, namely the consequences of the introduction of the latest technologies, artificial intelligence, in particular, we note that uneven ownership of such technologies between countries of the world and within countries leads to various types of inequalities: *inequality in income, inequality in access, inequality in skills, inequality of opportunities (educational, economic).* However, many of the inequalities are correlated with the level of income. According to UNCTAD, over the past 10-15 years, global income inequality has decreased, mainly because large developing countries, mainly in Asia, and especially China, have grown faster than other countries and have begun to catch up in some economic and technological parameters with developed countries. However, the achievement of global equality is threatened by growing disparities within countries, which are increasing in connection with the development of the digital economy. According to statistical estimates, inequality between countries now dominates. In absolute terms, the gap between developed and developing countries has never been greater and continues to widen (Digital Economy Report 2019).

Economic inequality is influenced by many factors, including political processes, where there is a struggle for power and the influence of ideology. What is especially relevant now is the impact of wars and epidemics, which accelerate the widespread use of the latest technologies and their socialisation and application in new forms of interaction in society and the economy. Globalisation and technological changes are long-established factors of income inequality within countries. Nevertheless, these phenomena [globalisation and technological change] have helped to reduce poverty in low-income countries, not only in large, rapidly developing countries such as China and India, but also in many others, including countries in Africa (Human Development Report 2019; Jaimovich, Siu, 2019; Global Productivity, 2020).

Figure 1

Labour income in PPP$ by decile, 2017



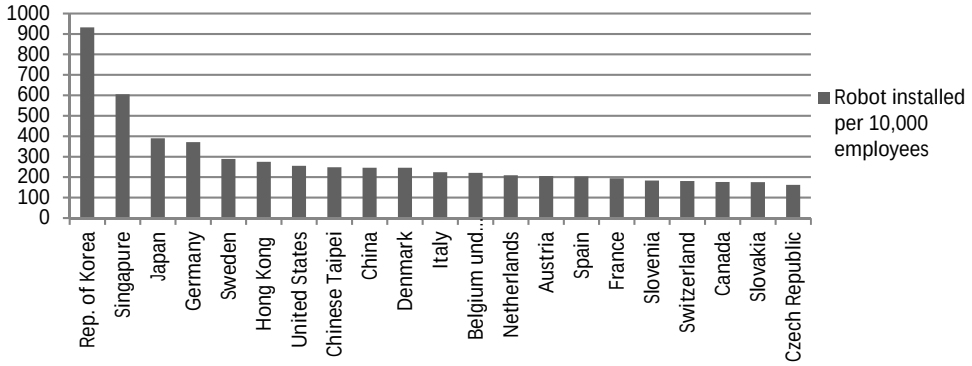
Source: SDG labour market indicators (ILOSDG). ILO modelled estimates, https://ilostat.ilo.org/topics/labour-income/.

Let's turn to the statistics of the International Labour Organization (ILOstat). A worker in the poorest 10% earns $266 a year, while a worker in the richest 10% earns $89,703. According to the ILO, the global distribution of labour income is one-sided: a worker in the top 10% earns US$7,445 (PPP) per month, while a worker in the bottom 10% earns only US$22. An interesting fact is that the economic convergence of India and China reduces global inequality, even if inequality does not decrease in either country.

The uneven use of robotics across countries will also affect economic inequality. Developed countries continue to lead the way in the use of industrial robots. According to the 2021 World Robot Report, the usage of industrial robots in factories around the globe is soaring at a high rate: 126 robots per 10,000 employees is the new average of global robot density in the manufacturing industries – nearly double the number five years ago (2015: 66 units). By regions, the average robot density in Asia/Australia is 134 units, in Europe 123 units, and in the Americas 111 units. The top 5 most automated countries in the world are South Korea, Singapore, Japan, Germany, and Sweden, which is seen in the figure.

Figure 2

Robot density in the manufacturing industry, 2020



Source: World Robotics 2021, https://ifr.org/downloads/press2018/World_Robotics_-_Robot_Density_2020_by_nation.jpg.

The inequality between developed countries, that is, countries with a high level of income, and developing countries, that is, countries with average and below average and low incomes from the use of frontal technologies is significant and is constantly deepening, the conclusion of which is made in the Technology and Innovation Report (pp. 47-48).

4.4. Discussions about artificial intelligence and its impact on the labour status: applying of values

In our opinion, the attack on a person's identity is taking place in the conditions of the gig economy, where the erosion of his labour rights is taking place under the influence of the expansion of artificial intelligence and frontier technologies. The gig economy is a model of labour relations based on temporary informal employment as opposed to full-time

employment, made possible by the emergence of digital employment platforms, technically implemented through mobile applications, to find workers for "on-demand" work. These are such types of work as Uber, Bolt, Airbnb, and Uklon taxi services. These are also "cloud robots" whose tasks can be performed via the internet anywhere on the planet. For example, a machine learning and artificial intelligence company, CrowdFlower works in a human-in-the-loop mode, cleaning big data and enriching it, which is then used by AI algorithms. It operates on a business model as a SaaS software development company, not a managed service. Given that this work is provided by a platform that brings together buyers and sellers, customers and executors, this mechanism is controlled by artificial intelligence algorithms guided by rationality, optimisation, and efficiency principles. The result of the gig economy is the generation of unprotected forms of employment, the so-called precarisation of work.

On the other hand, people in many developing countries can earn an income, develop new skills, and join professional networks. Although, in our mind, this is a person's compulsion to change, a forced adaptation of a person, which transforms them not always according to their own will. So, while the gig economy provides work in volatile times, it usually does so in precarious conditions, creating a precarious class of dependent contractors and on-demand workers. These workers have fewer labour rights and less bargaining power than salaried workers and may receive low wages for little social protection. In addition, AI algorithms are constantly adjusted in such a way as to minimise costs and adapt to the benefits of tax legislation and the minimisation of mandatory payments by employers to social insurance funds. Jobs in the gig economy compete with more secure traditional occupations such as taxi drivers and hotel workers. This competition between platforms and traditional forms of employment leads to the latter's displacement and exacerbates the problem of insecure employment and the deepening of social contradictions in the labour market in our time. The question arises as to how this will affect economic inequality. If the digital platform workers were poor people, unemployed, or middle-class people looking for a little extra income, then obviously, it would be a question of income growth. However, inequality will also increase if better-paid jobs replace these jobs, or full-time employment is replaced by part-time employment, and if the profits of digital platform owners grow faster than wages.

There is also the issue of marketable skills. If skills across occupations can be sold on the global labour market, wages between countries will tend to converge. Computer coding, digital design, medical diagnostics, and image recognition professions are popular in the global market. This allows you to join the global labour market. However, at the national level, the impact on inequality is more ambiguous because tradable work is usually reserved for low- and middle-income occupations. People in professions such as bankers, lawyers, and doctors are likely to be protected by the country's market regulation. The business also takes care of top managers already working in the global talent market.

The gig economy can exacerbate gender inequality, as women perform the lowest-paid jobs there. An ILO survey on digital platforms shows that, on average, women represent only one in three workers; and in developing countries, only every fifth worker. Another study found that while women work more hours on the platforms than men, they earn only about two-thirds of what men do (The Global Labour Income Share, 2019).

Under any circumstances, man and society find their manifestation and realisation in the process and results of work. This fact allows us to argue that labour, in all of its varieties and

forms, can be referred to as fundamental civilisational principles of establishment, functioning and development of human society at all historical stages of its movement, because any action, activity of people and society is primarily labour.

Within such activity over the course of the well-known recorded humankind history, one has set up civilisational principles and benchmarks of human participation in labour. Henry Ford also talked about the role of labour functions for the development of people: "labour and only labour is able to create values. An economic principle is labour. Labour is a human element that benefits from fruitful seasons"; "A moral principle is human right to labour. … only labour, just labour leads to the correct way towards health, richness and happiness." (Ford, 2018, pp. 12-13, 17).

There is a discussion that AI reduces labour demand. This discussion emphasises an important aspect of the relationship appeared between AI and automation that it provides. In an age of rapid automation and digitalisation, will deteriorate labour demand and workers will be particularly badly affected if new technologies are not raising productivity substantially. For this, they must be great to increase the productivity of related fields but not so-so. A new digital reality is expected to create new tasks for labour and increase productivity. In another case, if there are so-so automation technologies, labour demand declines: the displacement is there, while powerful productivity gains contributing to labour demand are missing (Acemoglu, 2019, p. 3).

This prospect engages contrasting in the reinterpretation of the history of technology and distinguishable standpoints about the future of work. There is room for a contest between automation and new, labour-intensive tasks. It is known that labour demand has not escalated steadily over the period of modern economic growth, which is defined as a period of the last two centuries under the influence of technologies that have made labour more productive in different directions. In contrast, many up-to-date technologies have encouraged removing labour from tasks in which it earlier specialised.

Simultaneously, labour has profited from advances in technologies, because related technologies have concurrently empowered the implementation of new labour-intensive tasks. These new tasks have done more than just restarted labour as a civilisational outcome but enhanced productivity growth (Acemoglu, 2019, p. 4).

This prospect creates a new way of comprehension about the economic capabilities and challenges advanced by AI. The primarily quantity of researchers observes AI as a creation of automation for a wide range of tasks. Among them, there are up-to-date applications helping with cognitive skills such as translation, image recognition, speech recognition, customer support, and the internet of things. But these are not the main modes that AI could be and primarily has to be used.

To keep in mind what chances AI really offers, it should be mentioned several options on the labour-related path. Firstly, in AI deployment must be not only the continuation of automation but counterbalancing innovations to create new tasks. If only AI generates automation, it will negatively impact labour, which can be accompanied by a reduction in labour engaged in the production process, productivity decline and increasing income inequality.

Secondly, room for human labour in AI-based automation still exists. Such areas as speech recognition and hand-eye coordination can be automated by AI technologies, but they don't remove all human skills from those fields. The limitations of AI-based automation are felt. But researchers see a true way out of these limitations by understanding AI as "… a technology platform, it can be developed for much more than automation." (Acemoglu, 2019, p. 5). Moreover, AI-based technologies can reconstruct the existing production processes with the creation of labour-intensive tasks that are high-productive also. To emphasise, it is expected huge societal benefits from AI as a platform and technology that creates new inquiries for labour-intensive tasks. The productivity growth as a result of deploying AI is also expected. It leads to sustainability and solving tasks concerning with it as economic inequality, poorness, unemployment, climate changes, environmental protection, etc. (Artificial Intelligence for a Better Future, 2021)

Platforms, as a result of the development of AI technologies, create a new labour market. On the one hand, it is referred to changes in the organisation of the classic living labour market, which are manifested in the emergence of a "flexible, virtual labour market", "distance relations" between employees and employers, quite rapid increase in the amount of freelancers (only in the USA in 2018, 56.7 million people worked in a freelance mode, which is 36% of country's working population) (Golovenchik, 2019, pp. 307-308). According to the majority of researchers on this problem, one more particularity of the modern labour market (within the first area of its transformation) is the priority of "flexible" and "digital skills" of potential candidates: personal qualities and social skills, for example, the ability to work in a team, curiosity, initiative, critical thinking, self-management, the ability to solve complex tasks, interact with other people, properly set priorities etc. (Ibid, 2019, p. 310).

Another significant area of the transformation of the field and forms of human labour functioning is their changes under the influence of the nanotechnological revolution. In the context of technological revolutions, rapid growth of robotic, digital economy, the need for some of the above-mentioned civilisational labour functions either disappears or transforms beyond recognition, obtaining false, skewed forms. Today, the whole range of leading corporations, such as Magic Leap, Microsoft, Hoaloha Roboticus, Google, DeepMind and others, are shifting to the next technological wave. In Japan, it is called Society 5.0 (the fourth one was information, the third one – was industrial) that will be based on the combination of physical and cyberspace technologies in a single complex. It means unifying of robotic systems, bio and nanotechnologies, photonics, quantum equipment and a human-machine interface with advanced solutions of engineering cybernetics, artificial intelligence, big data, Internet of Things, etc. (Lebedeva, 2019, pp. 22-23).

By the way, in 2016, such challenges and threats, probably for the first time, gained quite distinctive mass-specific forms when "Foxconn, a Chinese manufacturer of electronics, hired 40,000 robots, reducing 60,000 employees, as well as planning to increase the rate of automation by 20-30% per year and replace all of its product assemblers (at least half a million) in three stages. According to McKinsey, one will be able to automate human labour at the cost of 2 trillion dollars using existing technologies in the coming years. Up to 2036, one will be able to automate from 2% to 50% of labour expressed in person-hours and up to 46% to 99% up to 2066. More impressive forecasts are provided by scientists from AI Impacts, Future of Humanity Institute (Oxford University) and the Department of Political

Science (Yale University) due to the results of 2017's major survey. By estimations, researchers with a 50% probability believe that artificial intelligence will outpace people in all tasks within the next 45 years and automate all human workplaces in 120 years. Meanwhile, Asian respondents expect these events much earlier than North Americans (Golovenchik, 2019, pp. 313-316, 319). At the same time, researchers express a reasonable opinion that one can totally agree with and that, unfortunately, is not perceived by those building a strategy of global economic and social development: "The development of economic digitalisation and capitalisation processes will give a positive effect for society only if comparing with economic socialisation processes. It implies substantial changes in the social system, evolution of activity types related to the leisure time sector and formation of new human abilities", which causes a range of problems and challenges for society." (Grytsenko, 2018, p. 15).

Simultaneously, such concerns exist according to the process of new technology diffusion. This warning regarding the too-fast adoption of advanced technologies is also expressed by Guo Kaitian, Senior Vice-President at Tencent (a leading company engaged in digital technologies estimated at 256.6 billion dollars). He believes that "adoption of technologies is a quite expensive process while their deep impact on society is much more complicated than people can imagine. It is referred not only to the enhancement of manufacturing efficiency. The impact of technologies goes far beyond its boundaries, destabilising the structure of social division and allocation of labour." (Ma Huateng et al., 2019, p. 13). Statistical figures show that daily consumption of scientific and technological progress products results in the loss of the main thing – a human being, their needs and demands. Evidence suggests that the majority of people can't keep pace with the extreme development of technologies. At the same time, society as a group of individuals has to advance, mature and become controlled. Well, scientific and technological progress is one of the main forces of human society advancement. Another similar force is the human propensity to self-analysis (Ibid, 2019, pp. 14, 16).

Besides challenges, problems and contradictions accompanying the process of qualitative systematic transformation of any technological method of production, key risks in the context of the scientific revolution and digital economy include the decline, or even the loss of totality of such civilisational labour function as its affordability and continuity of reproduction for the significant number of people worldwide. It will definitely complicate human socialisation processes, conditions for self-actualisation, creative development and turn many people into outcasts and pariahs within operating society.

In our opinion, in case of perceiving such an attitude, we will have to admit the beginning of the actual end of history, namely human civilisation. Fortunately, in reality, the reverse process takes place: sense-making labour functions in the context of the Fourth Industrial Revolution are just expanding. So, for instance, André Gorz stresses that "employees are not just owners of their external human resources (i.e., abilities defined by employers), but products of self-production, which keep working on self-creation." (Gorz, 2010, p. 27). Thus, it is reasonable to state that actual "sense-making" functions in the context of the global digital economy do not disappear but, on the contrary, even in the case of dualisation, dualism (human-centered/transhumanistic paradigm), become actual, obtaining brand-new forms of

manifestation and a new intended purpose in the system of strategic target setting of human civilisation development.

We can see the substantial transformation of such a civilisational labour function as realisation and recognition of the need for interaction among different people, teams and states in the labour process due to the emergence of a new type of human relations in production, economic activities – human beings and artificial intelligence, robots and the system of robots. How will this aspect affect human adaptation to new relations in the labour process, what will this relationship look like – subject-to-subject or subject-to-object, and who will play a role of subject in these relations? This question can be answered only using self-analysis.

What requires comprehension is the focus, boundaries of such a civilisational labour function as development and assurance of the space for trust between economic (and social in its new forms and conditions) life entities. According to the results of global research called 'The 2020 Edelman Trust Barometer', "the majority of the population (56%) worldwide thinks that capitalism in its current form causes more damages than benefits; three-quarters of inhabitants feel unfairness in society and desire changes. Negative views on capitalism primarily dominate in developing countries, in Thailand (75%) and India (74%), although more than half of respondents are their followers in many developed European countries: France (69%), Italy (61%), Spain (60%), the Netherlands (59%), Germany (55%), the UK (53%). People consider the government institution as the least fair (57% of the global population)." (Biryukov, 2020, pp. 18-19).

Such a level of trust worldwide to key political and economic institutions challenges caused by rapid development and application of artificial intelligence leads to intensifying contradictions in the whole traditional civilisational systems, which requires a new methodological paradigm of grounding potential ways of coming out of society's crisis.

Meanwhile, the same complex problems are caused by the fast integration of such revolution achievements as artificial intelligence into real economic life. Its diffusion causes a whole range of methodological, moral, ethical and practical questions, such as: How to deal with trust in artificial intelligence, and robots when they make managerial decisions? What will be their attitude to decisions made by people in the manufacturing process, to the necessity to create not just material and non-material benefits, but moral benefits? What if this will decline the role of the trust institution in social and labour relations at all levels of the social division of labour? Who will define the degree and viability of the creative character of labour?

4.5. Economic philosopher's comprehension of the new paradigm of human civilisation: values and ethics approach as more than practice one

At the beginning of the 21st century, a new strategic paradigm of human civilisation development was conceptually formed, seemingly attractive and tempting: the creation of a superhuman, new forms of human existence, etc., which will definitely lead to fundamental qualitative changes in values of all areas of social and economic life worldwide if this paradigm is implemented.

To emphasise, attitudes and approaches to recognition of the existence of fundamental values, civilisational principles and benchmarks, "which have a necessary and absolute character, and are not subject to the flow of time", their essence and role in the preservation and constructive development of human civilisation, are mostly aligned among researchers of different times and nations. Some researchers believe that there is also "the background for our moral values in modern society" (in other words, globalised, information, digital society, etc.) when dominating is the thought that it (society) can do without morality, as the private interest will lead us to the nirvana of mass prosperity, when "greed is a good thing (Collier, 2021, p. 80). Such basic values, in author's opinion, include "six values appearing to be common for people who live in the most diverse corners of the world, and none of them comes from the mind. Care for near ones and freedom are, probably, the primary values from the perspective of evolution. Fidelity and respect for sacred things were established as values keeping a group. Justice and hierarchy standards were developed as a way of order preservation in a group, while respect was the reward for their compliance. Our values are significant, because the fulfillment of our obligations required by them is more important than the satisfaction of our desires." (Collier, 2021, pp. 80-81).

In terms of understanding and recognising the persistent, eternal role of mutual interaction of the essence and functions of the particular level of values and fundamental values, quite interesting is the viewpoint of Francis Fukuyama (2020). He provides original and reasoned arguments for existence, even in the context of dynamic and, to a certain degree, biased, unconscious, remonstrative atomisation of the individual as a member of the society of this sustainable interaction.

Scientists, defining the essence and role of culture in the establishment of civilisation and principles of its functioning, consider a constructive concept, according to which, "a human being is a creature abiding by the rules, which is mostly distinguished from animals by having culture, primarily the block of rules, which determine external boundaries for its personal individual activity." (Sztompka, 2013, p. 271). To summarise, the majority of culture definitions stress that it focuses on a proper, expected in this society lifestyle, describes how people should act, what may not coincide with what they would like to do, and how they behave in practice.

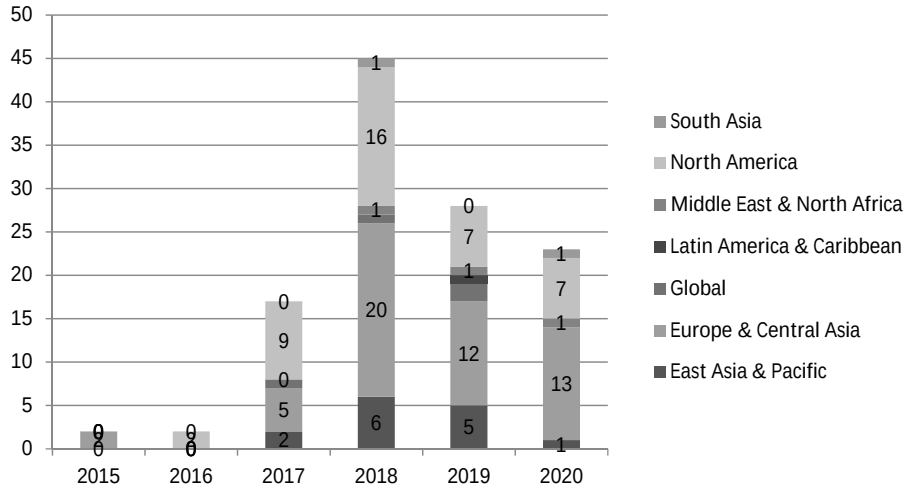
In the context of the nanotechnological revolution, when the idea of creating a new human being, overhuman, homo roboticus, etc., is expressed more and more obvious, culture as a civilisational principle and civilisational milestone become vitally important in the struggle for preservation, or vice versa, for change in the identity of human being, human society, human civilisation. In fact, people as key figures in the functioning and development of existing civilisation contain qualities that make them extremely stubborn and flexible, even to hurricane mega-changes in nature, technologies and society. This feature was mentioned by G. Hegel, stressing that a human being as an individuality retains an endless multiplicity of relationships belonging to the certain content of human nature.

To confirm our conclusions, it is remarkable to address the data in the ethical principles of AI deployment. As written in the AI Index Report, 2021, researchers from the AI Ethics Lab (the USA, Boston) invented a ToolBox that calculates the increasing number of AI principles. Notably, a total of 117 documents concerning AI principles were brought out between 2015

and 2020. Data reveals that Europe and Central Asia have the highest number of publications as of 2020 (52), followed by North America (41) and East Asia and Pacific (14) (Figure 3). In terms of rolling out ethics principles, 2018 was the clear high-water mark for tech companies – including IBM, Google, and Facebook – as well as various UK, EU, and Australian government agencies.

Figure 3

Number Of New Ai Ethics Principles By Region, 2015-2020



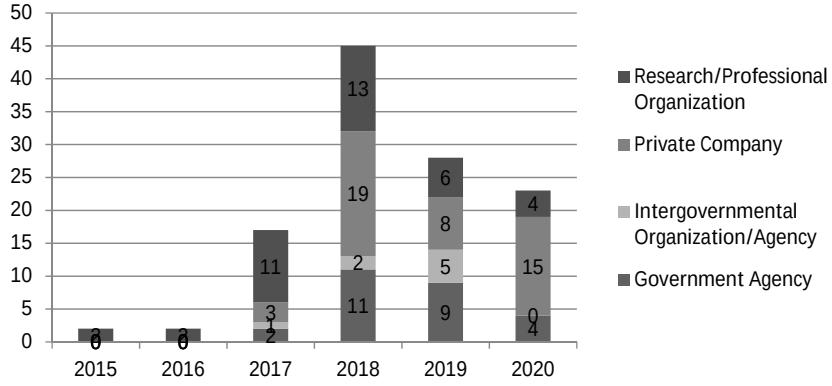
Source: AI Ethics Lab, 2020 | Chart: 2021 AI Index Report, p. 130.

The ethical issues of AI are prevalently deployed in beings' life within the current decade and are subject to scrutiny. So far, to emphasise the growing interest to integrate values in the assessments of AI outcomes, the data collected in Artificial Intelligence Index Report 2021 demonstrate the particular interest in this research. As one knows, AI-based technologies can lead to negative consequences, among them the violation of labour rights, discrimination on gender, opaque decision-making, lost the human identity under automation, etc. Due to existing value challenges and ethics in their basics, the task of creating responsible and fair AI innovations has arisen. The open data and analysis made by Stanford University Human-Centered Artificial Intelligence show a growing proliferation of papers describing AI principles and frameworks within media (Figure 4).

According to the Stanford University team's search in NetBase Quid, the analysis of 60,000 English-language news sources and over 500,000 blogs in 2020 on AI ethics issues demonstrate that there were 3,047 articles about AI-related technologies. Remarkably, the articles use words such as "human rights," "human values," "responsibility," "human control," "fairness," "discrimination" or "nondiscrimination," "transparency," "explainability," "safety and security," "accountability," and "privacy." (Artificial Intelligence Index Report 2021).

Figure 4

Number Of New Ai Ethics Principles By Organization Type, 2015-2020



Source: AI Ethics Lab, 2020 / Chart: 2021 AI Index Report, p.130, https://aiindex.stanford.edu/ai-index-report-2021/.

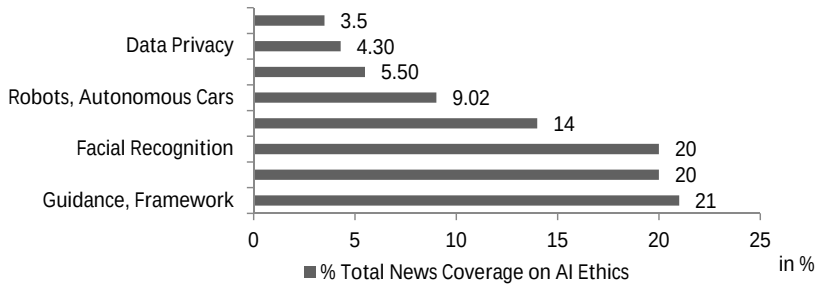
In comparison, ethical issues, as shown by studies since 2015 (Figure 4), have been incorporated into regulatory documents by governments, private companies, intergovernmental organisations, and research/professional organisations. These documents define the ethical problems of using artificial intelligence in practical activities. These documents contain the principles of assessing the relationship between business entities regarding the deployment and application of AI in organisations of various types. In essence, these principles of relationship management in the context of artificial intelligence are about respecting the rights and freedoms of employees and preventing discrimination that may arise in connection with the use of AI. But this is only the beginning of ethical management in the application of artificial intelligence. Therefore, experts determine their vagueness and do not make their application mandatory due to the weakness of the institutional base (Artificial Intelligence Index Report 2021; Henz, 2021).

Figure 5 represents that papers concerning AI ethics guidance and frameworks peaked at the record of the most printed news topics (21%) in 2020, accompanied by research and education (20%) and facial recognition (20%). The less cover AI ethics topics were AU explainability (5.5%), data privacy (4.2%) and enterprise effort (3.5%).

All this data confirms the preciseness and practical orientation of this research. The presented problematic options for the transformation of particular values in the conditions of the new socio-technological reality testify, firstly: about the need to recognise such a process and systematic preparation for entering it and the corresponding adaptation of civilisational norms and orientations of human life and society in a new environment; secondly, about the need to use the established traditional civilisational principles of the economy and society for their preservation and development in the interests of man. We are obliged to proceed from the recognition, understanding and desire to implement the strategic goal of any qualitative changes in the technological method of production to make the life of man, human civilisation more comfortable, safer, and more promising.

Figure 5

News Coverage on AI Ethics (% of Total) by Theme, 2020



Source: NetBase Quid, 2021Artificial Intelligence Index Report. Stanford University. Human-Centered Artificial Intelligence, p. 131.

5. Conclusion

Among such particular and fundamental civilisational values, we include the following basic values, which have economic and non-economic (social, political, legal, democratic values) prerequisites for their provision:

1. Life and health of a person, their honour and dignity as the highest economic, political and social values and priorities of the state and society. The preservation and development of these values of humanity must be ensured in the system of deployment of high technologies, such as artificial intelligence and machine learning, and their algorithms, which can have an aggressive marketing character and serve the interests of capital owners in the post-capitalist economic system. It makes rational sense to use the means of public administration and the legal system of the state to prevent and limit the deployment of technologies that directly or indirectly threaten the life and health of a person, humiliate their honour and dignity, limit their right to private life and individual freedom, and/ or nullify the civil right to selective (limited, regulated) access to personal data.
2. Human knowledge and skills should remain dominant in the new economic and technological reality. They must also be complicated by AI-related technologies. For example, the following are ways of ensuring the specified value: legal and economic protection of labour rights; creation of conditions for professional development and retraining of employees to get equal access to getting labour-intensive skills; the primary right of a person to a workplace that can be computerised and automated; the development of adaptive human labour systems, namely government support for employers who retain human-based jobs as opposed to computerised, automated jobs, or the development of hybrid workplace systems where successful business practices coexist with serviced workplaces artificial intelligence technologies and human intelligence, human knowledge and skills.

3. "Free development of individuality" (according to Mill) involves revealing the full potential of a person, both physical and creative, professional and intellectual. The economic and political systems of countries should contribute to this through equal access to starting opportunities under the conditions of revolution 4.0. The guide to action for developed states is the principle of two-dimensional justice, where the key factors are ensuring economic independence and participation of members of society in decision-making, preventing the humiliation of their human dignity, and guaranteeing social status through the distribution/redistribution of material goods, creating conditions for equal respect and equal opportunities (primarily in education) (Fraser, 2003).
4. Respect for diversity and identity, and social justice. Humanity is moving towards tolerance in the management of all spheres of human life, where there should be recognition of the advantages of differences and diversity, pluralism of opinions, and approaches in the economy. Intellectualization, morality, spirituality, responsibility, socialisation of subjects of economic and social life, aiming at ensuring optimality in the ratio of the market and social justice at the micro and macro levels, etc., should be the key value orientations of economic and technological changes.
5. Peace and security. Civilisational values of good and evil, which means the prevention of war, any form of aggression by some states against others, including hybrid wars using AI technologies, threats to national security, and threats to invade the sovereign territories of states. The value of the good correlates with the economic maxim – the prevention of extreme poverty and inequality, the economic values of the modern economy are based on ethical principles of using AI-related technologies, which means incentives and motives for the principle of human-centeredness in the implementation of economic and social policies.

To conclude, even in the context of rapid development and systematic adoption of artificial intelligence in all spheres of economic and social life across the globe, we should rely on the recognition, understanding and aim to implement the strategic goal of any qualitative changes in the technological method of production: to make living conditions of human beings and human civilisation worldwide more comfortable, safe and promising.

References

Anikin A. (2014). Transhumanism as an alternative project of social memory. – In: Global Future 2045: Anthropological crisis. Converged Technologies. Transhumanist projects: Materials of the First All-Russian Conference, Belgorod, April 11-12, 2013, Ed. D.I. Dubrovsky, S.M. Klimova, "Canon +" ROOI "Rehabilitation", Moscow, pp. 96-106 (in Rus.).

Artificial Intelligence Index Report 2021. Stanford University. Human-Centered Artificial Intelligence, 222 p.

Artificial Intelligence for a Better Future: An Ecosystem Perspective on the Ethics of AI and Emerging Digital Technologies by Bernd Carsten Stahl, 1st ed. 2021, Cham: Springer International Publishing: Imprint: Springer.

Atkinson, A. (2018). Inequality: What Can Be Done?. Translation from English by O. Levchenko; scientific editor M. Dobriakova. Moscow: Delo Publishing house, RANEPA (in Rus.).

Balyazin, V. (author-comp.). (2012). Wisdom of the millennia. Moscow: OLMA Media Group (in Rus.).

Banerjee, A., Duflo, E. (2021). Good Economics for Hard Times. Trans. from Eng. by M. Markov and A. Lashchev; scientific editor D. Raskov. Moscow: Publishing house of Gaidar University; Saint Petersburg: Faculty of liberal arts and sciences of St. Petersburg State University (in Rus.).

Biryukov, V. (2020). Values, institutions and economic development. – Society and economy: International scientific and socio-political journal. N 4, pp. 5-24 (in Rus.).

Blummart, T., den Broek, St. V., Kolthof, E. (2019). The fourth industrial revolution and business: How to compete and develop in the era of the singularity. Translated from English. Moscow: Alpina Publisher (in Rus.).

Breque Maija, De Nul Lars, Petridis Athanasios. (2021). Industry 5.0 Towards a sustainable, human-centric and resilient European industry Maija Breque Lars De Nul Athanasios Petridis. European Commission, Directorate-General for Research and Innovation, 48 pages.

Brockhaus. Philosophy: Concept, thinkers, concepts. (2010). Translation from German]. St. Petersburg: Amfora, Amfora Publishing house, Russian Christian Humanitarian Academy (in Rus.).

Brockman, J. (ed.). (2017). What to Think About Machines That Think: Today's Leading Thinkers on the Age of Machine Intelligence. Translation from English. Moscow: Alpina non-fiction (in Rus.).

Collier, P. (2021). The Future of Capitalism. Trans. from English by Oleg Filippov. Moscow: Publishing house of Gaidar University (in Rus.).

Daron Acemoglu, Daron, Restrepo, Pascual. The Wrong Kind Of AI? Artificial Intelligence And The Future Of labour Demand. Working Paper 25682, http://www.nber.org/papers/w25682, NATIONAL BUREAU OF ECONOMIC RESEARCH, 1050 Massachusetts Avenue, Cambridge, MA 02138, March 2019.

Digital Economy Report 2019. Value Creation and Capture: Implications for Developing Countries, UNCTAD/DER/2019, 4 Sep 2019, 194 pages.

Drexler, E. (2014). Radical Abundance: How a Revolution in Nanotechnology Will Change Civilisation. Translation from English by Y. Kapturevskyi; under scientific supervision of S. Lurie. Moscow.: Publishing house of Gaidar Institute (in Rus.).

Fraser, N., Honneth, A. (2013). Umverteilung oder Anerkennung? Eine politisch philosophische Kontroverse. – Frankfurt am Main: Suhrkamp Verlag.

Ford, M. (2016). Rise of the Robots: Technology and the Threat of a Jobless Future. Translation from English. Moscow: Alpina non-fiction (in Rus.).

Ford, H. (2018). My life. My achievements. Trans. from Eng. by E.A. Kachelin. Moscow: Publisher AST (in Rus.).

Fukuyama, F. (2020). Identity: The Demand for Dignity and the Politics of Resentment. Translation from English. Kyiv: Alpina Publisher (in Rus.).

Golovenchik, G. G., Kovalev, M. M. (2019). Digital economy. Minsk: Publishing center of Belarusian State University (in Rus.).

Gorz, A. (2010). Non-material. Knowledge, value and capital. Moscow: Higher School of Economics (in Rus.).

Global Productivity. Trends, Driver, and Policies. Advanced edition. Edited by Alistair Dieppe, 2020, International Bank for Reconstruction and Development, The World Bank.

Greenfield, A. (2018). Radical Technologies: The Design of Everyday Life. Translation from English by I. Kushnareva. Moscow: Delo Publishing house, RANEPA (in Rus.).

Grytsenko A. (2018). Digital development: structure, capitalisation and socialisation. – Economic theory, N 4, pp. 5-20 (in Ukr.).

Gumilev, L. N. (1993). Ethnosphere: The history of the people and nature. Moscow: Ekopros (in Rus.).

Hausman, D. M., McPherson, M. S. (2012). The philosophical foundations of mainstream normative economics. – In: Hausman, D. (ed.). Philosophy of economics. Anthology. Translation from English. Moscow: Publishing house of Gaidar Institute (in Rus.).

Hegel. (1974). Encyclopedia of philosophic sciences. Vol. 1. Science of Logic. Moscow, Mysl (in Rus.).

Henz, P. (2021). Ethical and legal responsibility for Artificial Intelligence. – Discov Artif Intell 1, 2 https://doi.org/10.1007/s44163-021-00002-4.

Human Development Report 2019. Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century". UNDP.

Ilin, V. V. (2003). Philosophy of history. Moscow: Publishing house of Moscow University (in Rus.).

Jaimovich, N., Siu, H. E. (2019). Job Polarisation and Jobless Recoveries. – The Review of Economics and Statistics 102 (1), pp. 129-147.

Keiper, A. (2003). The Nanotechnology Revolution. On the science and politics of manipulating the very small. Essey. – The New Atlantis, Vol. Summer 2003, available at: https://www.thenewatlantis.com/publications/the-nanotechnology-revolution.

Lebedeva, I. P. (2019). Japanese labour market in the 21st century. Economic and social problems. Moscow: Institute of Oriental Studies of the Russian Academy of Sciences (in Rus.).

Ma Huateng, Meng Zhaoli, Yan Deli, Wang Hualei, (2019). The Chinese Digital Economy. Translation from Chinese. Moscow: Intellectual literature (in Rus.).

Markoff, J. (2016). Machines of Loving Grace: The Quest for Common Ground Between Humans and Robots. Translation from English. Moscow: Alpina non-fiction (in Rus.).

Mazzucato, M. (2021). The Value of Everything: Making and Taking in the Global Economy. Translation from English by N. Protsenko; scientific editors N. Afanasov, A. Pavlov. Moscow: Publishing house of Higher School of Economics (in Rus.).

Mill, J. S. (2020). On Liberty: essay. Kyiv: Andronum Publisher's Union (in Rus.).

Polishchuk, Y., Ivashchenko, A., Britchenko, I. (2018). The Ways for Implementation of ICO European Best Practices for SMEs in Ukraine. – Economic Annals XXI, Vol. 2, pp. 67-71 (in Ukr.).

Robot Density nearly Doubled Globally, International Federation of Robotics Reports, https://ifr.org/ifr-press-releases/news/robot-density-nearly-doubled-globally#:~:text=Robot%20density%20in%20the%20United,sales%20in%20the%20United%20States.

Rodrik, D. (2019). Straight Talk on Trade: Ideas for a Sane World Economy. Trans. from Eng.by A. Rezvov. Moscow: Publishing house of Gaidar Institute (in Rus.).

Ross, A. (2017). The Industries of the Future. Translation from English by Nataliia Koshmanenko. Kyiv: Nash format (in Ukr.).

Sachs, J. (2012). The Price of Civilisation. Translation from English by A. Kalinina; edited by V. Y. Grigorieva. Moscow: Publishing house of Gaidar Institute (in Rus.).

Schwab, K., Davis, N. (2018). The Fourth Industrial Revolution. Translation from English. Moscow: Eksmo (in Rus.).

Scheer, A. W. (2020). Industry 4.0: From vision to implementation. Translation from English by O. A. Vinichenko and D. V. Stefanovsky; scientific editor D. V. Stefanovsky. Moscow: Delo Publishing house, RANEPA (in Rus.).

SDG labour market indicators (ILOSDG). ILO modeled estimates. URL: https://ilostat.ilo.org/topics/labour-income/.

Tarasevych, V. M. (ed.). (2021). Digital measurement of innovative and information economy. Dnipro: PMP "Economy" (in Ukr.).

Selivanov, A. (2016). Object development. Future management science. Moscow: Algorithm Trading House LLC (in Rus.).

Spirkin, A. G. et al. (eds.). (1986). Vocabulary of Foreign Words. 13th edition, stereotype. Moscow: Russian language. (Rus.).

Sztompka, P. (2013). Sociology. Analysis of modern society. Translation from Polish by S. M. Chervonnaia. Moscow: Logos (in Rus.).

Streeck, W. (2019). Buying Time: The Delayed Crisis of Democratic Capitalism. Cycle of Frankfurt Adorno Lectures. Translation from Germany by I. Zhenin; scientific editor M. Dobriakova; Higher School of Economics National Research University. Moscow: Publishing house of Higher School of Economics (in Rus.).

Supian, V. B. (eds.), Aksenov P. A. and others. (2018). US economy in the 21st century: challenges and development trends. Federal State Budgetary Institution of Science "Institute for US and Canadian Studies" at Russian Academy of Sciences. Moscow: Ves Mir Publishing house (in Rus.).

Technology and Innovation Report 2021. Catching Technological Waves. Innovation with Equity. United Nations publication issued by the United Nations Conference on Trade and Development. 196 pages.

The Global labour Income Share And Distribution, Data Production and Analysis Unit, ILO Department of Statistics Key Findings, July 2019, 7 pages.

Van Parijs, P., Vanderborght, Y. (2020). Basic Income: A Radical Proposal for a Free Society and a Sane Economy. Trans. from English by A. Gusev; scientific editor S. Moiseev. Moscow: Publishing house of Higher School of Economics (in Rus.).

Wajcman, Ju. (2019). Pressed for Time: The Acceleration of Life in Digital Capitalism. Trans. from Eng. by N. Edelman; scientific editor S. Shchukina. Moscow: Delo Publishing house, RANEPA (in Rus.).

Yemelin V. A. (2017). Identity in the information space. Moscow: Kanon+ Publishing House Regional Society of Disabled People "Rehabilitation" (in Rus.).

Zaitsev, Y. K., Moskalenko, O. M. (2018). Contemporary political economy as a theoretical basis for economic development of a society. In 2 books. Book 1. Philosophical and methodological principles of architectonics of contemporary political economy. Kyiv: KNEU (in Ukr.).

Zaitsev, Y. K., Moskalenko, O. M. (2020). Contemporary political economy as a theoretical basis for economic development of a society. In 2 books. Book 2. Contemporary political economy as a methodological paradigm of economic development policy in a globalised society. Kyiv: KNEU (in Ukr.).