Emergence of Society 5.0

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The Society 5.0 emerged as an Japanese government program in which the government wish to establish a better, super-smart and more prosperous human-centered society, with the support of the technological innovations. The goal of the program is also to recover the Japanese economy. The similar program is known in Europe as Industry 4.0. or Fourth Industrial revolution and in USA as Industrial Internet.

Keywords: society 5.0 ; social changes ; information society

1. Emergence of the Society 5.0

The theme of this text focuses on the importance and role of Society 5.0, which was founded as part of Japanese Prime Minister Shinzo Abe's program to revitalize the Japanese economy. The so-called "Abenomics" consist of the "three arrows": monetary easing, fiscal stimulus and growth strategy. According to the scientific report of UNESCO [1], the first two arrows allowed the Japanese economy to stay afloat. However, the UNESCO report devotes special attention to the third arrow, which will have long-term consequences for socio-economic development. The first growth strategy was drawn up by the Japanese government in 2013 and revised each year until 2017 when the strategy was revised, and Society 5.0 was included in it.

2. Theoretical framework

The principles of Society 5.0 based based on the socio-technological solutions of the fourth industrial revolution, which is also called Industry 4.0. In the period Industry 4.0 (approximately from 2011 to 2030), technological development is enabled the transformation from a service-oriented society to a society in which the individual is at the center. With the introduction of Internet of Things (IoT), the process of informatization has made it possible to create a cyber-physical environment and large amounts of data, enabling the information society to connect intangible goods as information networks [2].

Society 5.0 has developed as a type of information society from Society 4.0. It is going for the fifth level after the Information Society (Society 4.0), which the industrial society (Society 3.0) will have reached with the invention of the computer at the end of the 20th century. Society 5.0 imagines a sustainable socio-economic system in which human power is no longer needed for the analysis and collection of data, but Big Data, artificial intelligence, the Internet of Things and robotic technologies are used. 5.0 is aware that human productivity is limited - so it is looking for resources that will break through the existing sense of stagnation and create a new generation of society [3].

The fourth industrial revolution brought with it two concepts that are important for the development of Society 4.0 and that reveal the essential characteristics of the future Society 5.0. [2]

First concept is the smart factory which is based on the sustainable mutual interaction between machine and human [4]. This definition of a future smart factory is very close to the concept of Society 5.0 because its vision is to establish a human-centered society in which products and services are designed to meet potential needs and reduce specific gaps, such as regional, generational, gender, or linguistic gaps. The transformation processes will ensure that people’s lives will be comfortable and vigorous. In order to ensure such living conditions, some of the challenges of economic and social change need to be addressed, which can be achieved by going beyond the use of advanced ICT, AI and robots versus the transformation of society [5]. According to the Japanese Artificial Intelligence Technology Strategy, AI presents the key technology for the emergence of Society 5.0. The strategy consists of five pillars, and it has to be exposed to the ethics and regulations of AI development and rules, which include answers to how, where, how long, and which companies can collect, store and share customer data [6]. The Japanese government proposes establishing global rules about data sharing, and they released the Social Principles of Human-Centric AI in 2019 [7].

The second concept covers the area of so-called smart urbanization. The world cities (and villages) development according the contemporary discourse about urban development strategies is based on sustainable urbanization which inlcude innovative technological solutions which enable the transformation of the cities into smart cities. Harayama [8] said that the Society 5.0 goals include a prosperous and citizen-centered society. According to the author, this will happen when artificial intelligence is developed to the point where technology will be able to transform the vast amount of data collected by IoT into a new type of knowledge with added value (e.g. regular monitoring of healing will be done from home). These relationships between people and technology aim to improve the quality of life and ensure sustainable development in all areas (education, health, democracy, economy) [2]. In this context, urban development strategies focus on introducing innovative technological solutions, such as the IoT, Internet of Services (IoS), Internet of Everything (IoE), artificial intelligence technologies, blockchain technologies, new sustainable materials, introducing new economic models (sharing economy, cycling economy), as well as the development of smart processes (e-mobility, e-health, e-government, e-education, e-social inclusion) that lead to the continuous development and semantic characteristics of the smart city which become citizens oriented [9][10].

3. Conclusions

Humanity has so far lived in four forms of society: Hunting, agriculture, industry and informatics. Now the digital transformation is leading him to a Society 5.0, which is called "super-intelligent society" and which is oriented towards a humane society. The digital transformation is changing many aspects of society, including private life, public administration, industrial structure, health care, transport, energy, employment, etc. At the same time, there are significant socio-economic changes taking place through the application and influence of new technologies and new knowledge, leading to accelerated, targeted and integrated scientific and technological development. Through the application of modern robots, automation, sensors, artificial intelligence, intelligent networks and structure, microelectronics, big data and databases update in real-time with IT connectivity all aspects of society and the environment in which people live, through the realization of smart control and monitoring systems, through the creation of a global human network in which everyone communicates with everyone and communicates with everyone in real-time, from any point on planets, a new society based on creativity, ideas, innovation and knowledge is created. In this type of society, it is lost or minimizes the need for massive physical and monotonous work, and the human mind is focused on creativity and creative activities. All this is intended to provide people with a high quality of life, their life satisfaction, their subjective well-being and happiness. Society 5.0 forms the basis for the transition to the fifth industrial revolution in the next ten years.

References

1. UNESCO Science Report: towards 2030 . Chapter on Japan in UNESCO Science Report. Retrieved 2020-9-17
2. Vasja Roblek; Maja Meško; Mirjana Pejić Bach; Oshane Thorpe; Polona Šprajc; The Interaction between Internet, Sustainable Development, and Emergence of Society 5.0. *Data* **2020**, *5*, 80, 10.3390/data5030080.
3. Deguchi, A. et al.. Society 5.0 ; Deguchi, A.; Sameshima, S., Eds.; Springer: Singapore, 2020; pp. 1-23.
4. Tracy A. Jenkin; Lindsay McShane; Jane Webster; Green Information Technologies and Systems: Employees? Perceptions of Organizational Practices. *Business & Society* **2011**, *50*, 266-314, 10.1177/0007650311398640.
5. Kayano Fukuda; Science, technology and innovation ecosystem transformation toward society 5.0. *International Journal of Production Economics* **2020**, *220*, 107460, 10.1016/j.ijpe.2019.07.033.
6. Artificial Intelligence Technology Strategy . Strategic Council for AI Technology, Tokyo, Japan. Retrieved 2020-9-18
7. Social Principles of Human-Centric AI . Council of Science, Technology and Innovation, Tokyo, Japan. Retrieved 2020-9-18
8. Harayama, Yuko; Society 5.0: aiming for a new human-centered society.. *Hitachi Review* **2017**, *66*, 556-557, .
9. Samad M.E. Sepasgozar; Scott Hawken; Sharifeh Sargolzaei; Mona Foroozanfa; Implementing citizen centric technology in developing smart cities: A model for predicting the acceptance of urban technologies. *Technological Forecasting and Social Change* **2019**, *142*, 105-116, 10.1016/j.techfore.2018.09.012.
10. Hoon Han; Scott Hawken; Introduction: Innovation and identity in next-generation smart cities. *City, Culture and Society* **2018**, *12*, 1-4, 10.1016/j.ccs.2017.12.003.