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Technologies and Society in the Near Future (summary)

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1. Introduction

AI, singularity, robotics, ICT, drone, VR, AR, IoT, Fintech, virtual currency, blockchain, 3D printer, nanotechnology, genome, sharing economy, basic income—these are some of the vocabulary the media have shed a spotlight on in recent years.

2. New sciences and technologies

Through studies of new sciences and technologies, I have learned that the individual terms and concepts of the sciences and technologies are correlated and reinforce one another. While past progress in machinery and products based on traditional scientific and technical knowledge has realized richer and more abundant lifestyles and cultures, the emerging sciences and technologies are expected to change human society far more drastically.

3. AI

The word "singularity" refers to a significant point at which computers become more intelligent than humans and gain dominance in technological development. There is a debate as to whether singularity will actually occur.

Ray Kurzweil, a singularity expert who directs AI engineering at Google, has predicted that with faster-than-expected technological development, singularity will occur as soon as 2029. If this proves true, unimaginable scales of change may occur at a rate much greater than what we have experienced for any development in the past.

4. Social change through new technologies

Besides the approaching singularity, which is long-term and uncertain, other major social changes through technological development have been predicted.

(1) Future of employment

Dr. Michael A. Osborne, Dyson Associate Professor in the Department of Engineering Science, Oxford University, in collaboration with researcher Dr. Carl Benedikt Frey, analyzed 702 occupations listed by the US Department of Labor, categorized them by such as "creative" and

"social", and calculated the probability that each occupation could be automated within the next ten years.
Nomura Research Institute, in cooperation with Drs. Osborne and Frey, similarly analyzed 601 occupations in Japan and estimated how susceptible they were to replacement by AI and automation. Nomura concluded that in 10 to 20 years the occupations of 49% of Japanese laborers may be automated.

(2) Self-driving vehicles and automation of traffic
Self-driving vehicles and traffic automation have already been successful on a trial basis on expressways overseas, and they will become feasible in many urban areas in the near future. With the expected sharp decline in traffic accidents and fatalities, society will most probably support this development. Sharing economies and the popularization of EVs will also contribute to massive changes in automobiles and the automobile industry.
However, new problems will emerge when a self-driving vehicle causes an accident. Who will assume responsibility? Who will be blamed? As self-driving systems evolve, there will be no clear culprits, only victims. Our traditional civil and criminal justice systems will no longer be effective, so the legal system which we have relied on through the last century will be compelled to change considerably.

(3) English education
While there are current efforts to improve English education in our elementary schools, Dr. Yutaka Matsuo, a leading figure in AI study and Project Associate Professor at the University of Tokyo, predicts that by around 2025, AI and computers will be able to translate and interpret languages at a competent level, so we will no longer need to learn foreign languages. Language barriers will be reduced significantly, which could lead to true globalization.

(4) Human rights and robot rights
A book entitled "*Ningen To Kikai No Aida… Kokoro Wa Doko Ni Arunoka (Between humans and machines—Where do our souls lie?)*" by Takashi Ikegami and Hiroshi Ishiguro contains the following scenario.
A mother buys an android that exactly resembles her child, lost in an accident. She loves and cares for the robot boy as her son. One day, her house is burglarized. The android confronts the burglar to protect his mother, but the burglar knocks him down, commanding, "You are a robot. Don't defy a human!" and continues to strike the child with a stick. The enraged mother then stabs and kills the burglar.
Can this action be justified as self-defense? Are individuals not human if they have a prosthetic body? With the continuing evolution of artificial organs and limbs, human bodies will be further mechanized. What must we retain in order to remain human?

5. Issues, challenges and proposals for the future

Students and other young people are often ignorant of or uninterested in the future of science and technology and how they affect humans and societies. I suspect that one of the most important factors for such indifference is the disconnection between the arts and sciences.

Today in Japan, arts students and individuals with arts backgrounds have little opportunity to study advanced sciences and technologies. Meanwhile, science students are highly receptive to new sciences and technologies, but they have their own issues. Dr. Matsuo points out that while he visits corporations and other sites to research effective AI use, students are reluctant to participate even when invited. Students of AI are focused on AI; they lack curiosity about society.

Few science students have sufficient opportunity to examine social issues related to their field. They tend to be devoted to their research, avoiding consideration of social matters. Arts students are ignorant of the sciences, and science students are ignorant of society.

Coming changes in sciences and technologies will affect society and lifestyles more sharply than ever. In our future society, we have to understand both social matters and sciences to bring about positive change and survive.

There is a pressing need to revise our education system, where arts and science courses are currently disconnected, by creating more integrated programs. This is a burning issue for our legislation, our administration, and our society.

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Author Profile

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Dr. Takahiro Suzuki is a Professor in the Graduate School of International Administration, Josai International University. He is also an advisor for the Outlook Foundation, a senior researcher at PHP Research Institute, a Representative of Japan School of Policy Making, and a contributor to Yahoo! News.

Dr. Suzuki was born in Utsunomiya, Tochigi Prefecture. He graduated from the Faculty of Law, University of Tokyo, and then studied at the University of Malaya in Malaysia and the University of Hawaii Graduate School under an East-West Center grant.

Dr. Suzuki was a co-founder and Administrative Director for Research at the Tokyo Foundation for Policy Research, Designated Professor and Deputy Director of Handai Frontier Research Center at the University of Osaka, and co-founder and Director of Think Tank 2005 Japan, a policy research institute affiliated with the Liberal Democratic Party.

He was also a lecturer at Hosei University and its graduate school, Visiting Professor at the Chuo University Graduate School of Public Policy, Secretary of the National Diet of Japan Fukushima

Nuclear Accident Independent Investigation Commission, and a special assistant to the Minister of Health, Labor and Welfare.
From 1991 to 1993, he served as an adjunct fellow at the Urban Institute. He received the Award for Excellence at the Osaka International Concept Competition.
His main publications include “Nihon Ni Minshu Shugi Wo Kigyo Suru—Jiden Teki Think Tank Ron”, “Gakko Ura Saito Taisaku Q&A” (coauthor), “Sekai No Think Tank” (coauthor), “Citizen Literacy”, “America Ni Manabu Shimin Ga Seiji Wo Ugokasu Houhou” (editorial supervisor and co-translator), and “Policy Analysis in Japan” (coauthor).
Dr. Suzuki’s current fields of interest include public policy, democratic startups, policy infrastructure establishment, human resource development for a new society, education, and new governance systems.

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