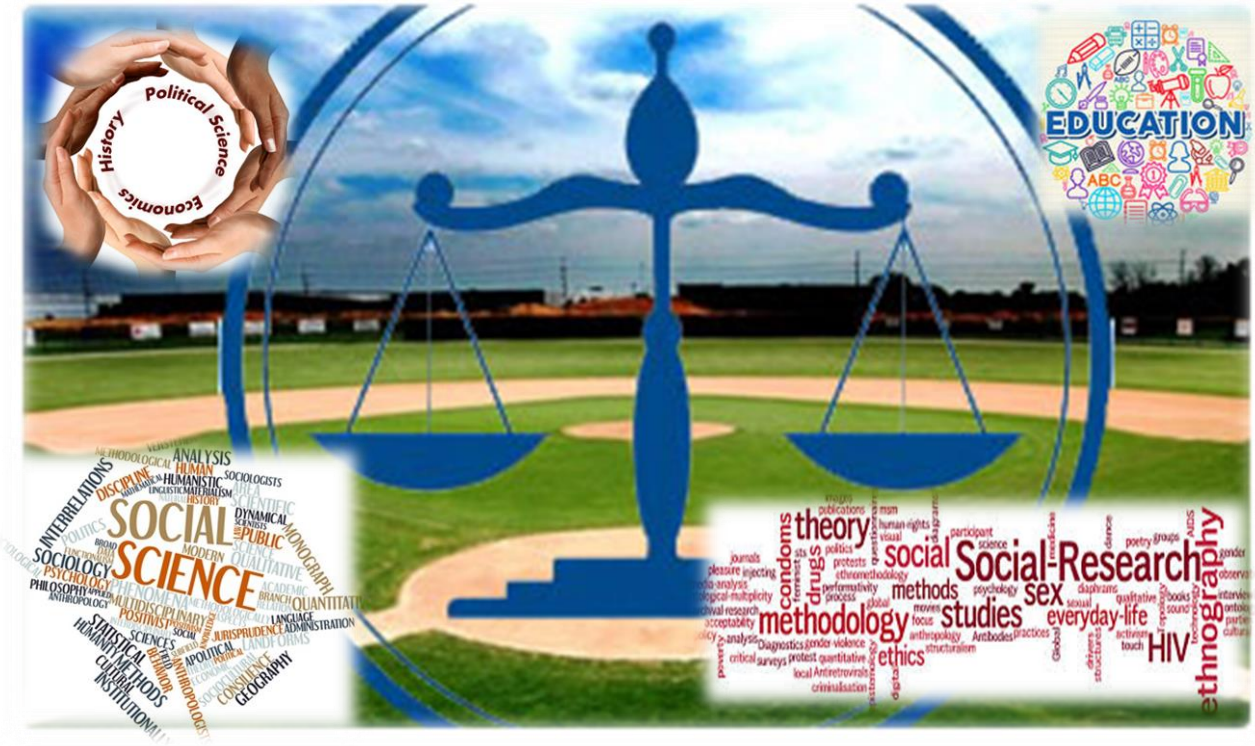

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Research Article

"SOCIETY 5.0" – Japan's Quest for Global Dominance

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ABSTRACT
We are living in a revolutionary age where the endeavors to create knowledge and value has changed considerably, along with rapid changes in the industrial structures. In such a scenario, new knowledge and ideas evolve which impact the competitiveness of organizations and countries. In a world where Information and Communication Technology (ICT) is evolving, and where the use and application of networks advancing, ICT is being taken advantage to the maximum in the manufacturing sector, such as in China's "Made in China 2025",Germany's "Industry 4.0" and the United States' "Advanced Manufacturing Partnership". Such efforts are taken to bring forth the desired change to revolutionize the government–private partnerships, which is a prerequisite for economic and social change.
In Japan, where the falling birth rate and aging population are obvious, the plan and efforts to coordinate various fields apart from the manufacturing industry, are very important for shaping economic growth and a strong society. Such endeavors will also end up in reaping the fruits of science and technology, such as ICT and related domains that have not been sufficiently reached until now. Moreover, it is desired to strengthen business and also enhance the quality of service. By the attempt to bring together the real world and cyberspace and using it to gain advantage of ICT to the maximum, Japan is chalking out a plan for an ideal form of future society: a "super smart society" where virtual reality will blend with daily life. The series of initiatives proposed toward realizing this ideal society are now being deeply strengthened and intensively promoted as "Society 5.0". The Japanese government is working with industry, academia and civil society in realizing this dream. This article brings to the fore the present scenario of science and technology in Japan and critically analyses the basic objectives of the fifth science and technology basic plan.

Introduction

The Government of Japan is trying to promote and develop a **"Super Smart Society"** commonly known as **"Society 5.0"** to impact the society, economy and the public in general. This is carried out through the Council for Science, Technology and Innovation of the Government of Japan. This is deemed as the fourth Industrial revolution and is intended to be achieved through government-

private partnerships. Advanced countries are moving into the "Internet of things", wherein machines, vehicles and buildings are connected with software and sensors and for exchanging data between the things, owners and the world. In order to stand tall with other nations and find solutions to the long standing societal problems, Japan is trying to develop "Internet of everything" with everything endlessly transmitting real- time data.

This policy has a very high expectation to bring forth large scale changes in manufacturing industries, logistics, transportation, medical care and public services. This ultimately will have effect on people's work and lives by encouraging them to attain a high standard of life. The new super smart society would meet the different needs of the citizens by providing the relevant goods and services with which the citizens can assess the highest services and live a fulfilled life that takes into account their differences such as age, gender, religion and language. An environment has to be developed where people, robots and Artificial Intelligence exist and work together. The citizens should likewise be capable of understanding and realizing the potential needs and provide services to support activities empowering and supporting service providers.

The extreme closeness in the real world due to the internet in a super brilliant society, may pave way to cyber-attacks that can inflict potential damage which will influence the financial and social life. Owing to this, a heightened security is a prerequisite. Advancement in the essential areas is very important as it would serve as a launch pad for the super smart society; this means that smart thinking is very essential in the collection and maintenance of data which would be the cornerstone in shaping and framing the smart society. Hence, Japan must specifically encourage and accelerate innovations.

In Japan, the innovations are going to help it gain dominance and also to meet the various needs of the economy and society. Developing some of the basic technologies like Robotics, Sensor technology, Actuator technology, Biotechnology, Human interface technology, Material/nanotechnology, Light/quantum technology and so on,[1]is fundamental for developing the smart city. For advancement in the key areas, the Council for Science, Technology and Innovation is expected to layout the common procedure considering the point that all the government ministries and agencies, should take the lead in Research & Development. It is also expected to proclaim the goals of the super smart society 5.0

Science and Technology in Japan – Present Scenario

Japan is undergoing a tremendous and rapid change in all spheres, especially in the field of science and technology. The rapid advancement in Information and Communications Technology (ICT) has led to incredible changes in social and economic structures of the nation. The rapid advancement in information and communications technology (ICT) has also led to the disappearance of markets and businesses that could not survive in the new environment. This has paved way to the emergence of new businesses and markets, and also a change in the way how people work and live. Exponential growth and change in the knowledge and value creation processes stresses on open-innovation and open-science because of the decline in the national birthrate, aging population, lop sided economic development, natural disaster, change in security environment, and deepening global-scale challenges.

Challenges and changes in Science and Technology in the past 20 years (1996-2016)

The "Basic Plan" was developed in 1996 based on the Science and Technology Basic Law, enacted in 1995. [2] At the time when the Science and Technology Basic Law was enacted, there was a demand within Japan to address the issues facing the nation and a need for paradigm shift of the country's policy from following the model of the West in science and technology. There was also a pressure to explore science and technology indigenously in the quest to become a global leader. The emphasis is on strengthening policy in certain areas ensuring government Research & Development investments, reforming the existing R&D system through the enhancement of post-doctorate programs and developing competitive environments.

Japan aims at development of R&D in all spheres and enhancement of its international competitiveness, by increasing the number of researchers and published papers. The fact that the nation has produced the second highest number of Nobel Prize winners in the natural sciences in the 20th century proves that Japan's science and technology has a strong international standing. In recent years Japan's strength has declined in the quality and quantity of papers by international standards primarily because of the difficulty of young researchers to demonstrate their abilities. Industry–academia partnerships have also miserably failed to improve and realize their potential in the past. These problems can be attributed to complacency and slackness in reforming the administration and the existence of "barriers" between and within organizations.

Sustainable growth in all vital spheres coupled with Economic growth and job creation are identified as the core areas supporting the national development. Japan will strive to increase production in order to revitalize the economy and the society thereby creating adequate jobs domestically. Ensuring safety and security for its citizens and promising a good standard of life is one of the basic goals. In addressing global challenges, Japan has a mission to be a country that constantly contributes and supports the advancement of mankind. Thus, Japan aims to proactively apply Science, Technology and Innovation (STI) ability to respond to global issues and help the developing nations improve the quality of life and diverse knowledge.

Basic objectives of the Fifth Science and Technology Basic Plan

- **Creation of new value for the blooming of future industry and social rejuvenation**
  In this competitive era, in order for Japan to take the lead, it is essential that it acts strategically with a vision to create future industries and enact social reforms. This will involve sharing the "super smart society" and incorporating Information and Communication Technology to advance and network in various fields.
- **Addressing economic and social challenges**
  With the economic and social structures changing daily, appropriate preemptive action addressing the various issues that exist and that which would pop up is a prerequisite to sustainable development. To achieve this, Japan will take the various issues emerging domestically and globally, select the key national policy issues, and act comprehensively to address the issues that arise.
- **Reinforcing the "fundamentals" for STI** (Science, Technology, and Innovation)
  In order to respond appropriately to the various possible future changes through STI, it is essential to strengthen the abilities of the researchers. The academic and basic research needed for creating diverse and exceptional knowledge at the source of innovation, and funding to support all STI activity is intended to be made.
- **Bringing together human resource, knowledge, and funding**
  For innovation Japan's future competitiveness is contingent upon the utilization of its human resources, knowledge, funding domestically and abroad. This will be achieved through collaboration between companies, universities and public research institutions.

Thrust areas in the promotion of the Science and Technology Basic Plan

- For efficiently advancing the above four initiatives, it is essential to deepen the relationships between STI (Science, Technology, and Innovation) and the various stakeholders of the society.[4]
- In order to advance STI effectively, it is essential that there is a collaboration between universities, public research institutions and companies. In addition, with an accelerated economic and social change, every year a Comprehensive Strategy on Science, Technology, and Innovation will have to be developed to facilitate flexible policy management.

Conclusion

There are countries which have set very good examples for development in the modern era. They were able to accomplish by targeting the key areas for development. Estonia regained

its independence in 1991 and after twenty years, it has become a world leader in technology. It has made a giant leap and is today one of Europe's best examples for finding e-solutions. Similarly, Singapore is making a brilliant attempt to become a Smart Nation to provide a better living and create more job opportunities for which the nation has identified five key areas that will impact the citizen and society through tech-enabled solutions. It aims to rally the collective efforts of people, businesses and government.

As such in Japan, in the future, with the progress in efforts toward a super smart society, one can anticipate not only the integration of several systems such as energy, transportation, manufacturing, and service but also the integration of organizational management functions such as personnel, accounting, and legal departments. Unlike Germany, the U.S, Estonia and China the vision of Japan is much greater and it is for sure that its thirst for global dominance will certainly be quenched.

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