



Artificial Intelligence Application Experience in Japan: A Theoretical Study

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Abstract :

This study explores Japan's strategic approach to artificial intelligence (AI) within its socio-economic and ethical frameworks. It highlights Japan's efforts to address labor shortages and an aging population through AI innovation, particularly in machine learning, natural language processing, image, and speech processing, with a strong emphasis on deep learning. The research examines Japan's legal and regulatory initiatives aimed at promoting ethical AI while maintaining competitiveness. Significant applications of AI in healthcare, education, manufacturing, and transportation are analyzed, alongside Japan's leadership in robotics and automation. Despite challenges such as talent shortages and legal adaptation, Japan's commitment to AI-driven transformation positions it as a global leader. The study also underscores the potential of AI to significantly boost Japan's GDP by 2030, especially through advancements in generative AI and sector-specific integration.

Keywords: Japan; Artificial intelligence; Technology.

1. INTRODUCTION:

In an era where technological advancements are rapidly accelerating like never before, Artificial Intelligence (AI) stands out as one of the most significant developments witnessed by many advanced countries worldwide, which have benefited from it in enhancing productivity in companies as well as providing innovative solutions to complex social and health issues, AI has become a fundamental pillar in shaping the future, with its impact on the economy and society being of paramount importance in the modern age.

As a result, countries, governments, large corporations, and others around the world have implemented a wide range of initiatives to study and develop AI in various fields Japan is one of the leading countries in the field of artificial intelligence, having successfully integrated it into its various economic and social sectors.

1.1. Statement of the Problem:

In Japan, artificial intelligence (AI) has become one of the fundamental pillars driving innovation and development across various economic and social sectors. Through the use of AI technologies, Japan has been able to enhance productivity in industries such as automotive and robotics, strengthening its competitive edge and maintaining its position at the forefront of advanced countries in this field.

AI has also contributed to developing innovative solutions to social challenges, such as labor shortages. By integrating AI into services like healthcare and education, Japan aims to improve the quality of life for its citizens. Today, Japan continues to lead in the field of AI, aligning its efforts with the needs of the modern era, making it a central hub for artificial intelligence worldwide.

1.2. Research Questions :

In light of these considerations, a pivotal question arises: " How has Japan's experience in applying artificial intelligence contributed to its economic and social development, and what are the key lessons learned from this experience from a theoretical perspective?."

1.3. Hypothesis:

Through our current study, it is assumed that Japan's success in the field of artificial intelligence was due to the efforts of its hardworking people, This success has significantly contributed to enhancing development in various aspects of life. Additionally, we hypothesize that adopting AI has helped Japan tackle challenges such as economic stagnation.

Moreover, it is expected that the positive outcomes of integrating AI have transformed both the social and economic landscapes in Japan, leading to improvements in quality of life, social services, and national competitiveness.

1.4. Significance of the Study :

The significance of this study lies in its ability to provide valuable insights into how adopting AI can revolutionize economies, especially in advanced countries like Japan. By examining Japan's experience.

this study can offer essential lessons for countries looking to integrate AI into their industries and public services. Additionally, the study could contribute to understanding the potential impacts of AI on the social and economic life of individuals.

1.5. Objectives of the Study:

The main objectives of this study are to:

- Review the factors that contributed to Japan's success in integrating AI across its various sectors.
- Understand the economic and social impacts of AI on Japan.
- Identify the challenges Japan faced during the AI adoption process and how they were overcome.
- Explore potential future trends of AI in Japan and its role in economic and social development.
- Provide recommendations for countries, especially those interested in this field, looking to implement AI in their economies based on Japan's experience.

1.6. methodology of the Study:

To conduct our study, the descriptive research approach was used through observation, data collection, examination of documents, reports, and previous studies in order to gain a deeper understanding of our topic.

The findings from the descriptive research provide valuable insights and contribute to guiding future research.

1.7. previous researches :(literature review)

Many researchers have highlighted the topic of Artificial Intelligence (AI) in Japan, including Mahendra Prakash, whose study tackled "AI IN JAPANESE SOCIO-ECONOMIC SPHERE AND ETHICAL APPROACH" ,(Prakash, 2024), it has explores the transformative impact of technological innovations, particularly artificial intelligence (AI), on human activities and cognitive abilities. It highlights the four main categories of AI: Machine Learning, Natural Language Processing, Image Processing, and Speech Processing, with a focus on Deep Learning. The study emphasizes Japan's advancements in AI technology, particularly its applications for improving daily life, and discusses the ethical development of AI within Japan's regulatory framework. Furthermore, it recognizes Japan's strategic interest in generative AI to address challenges related to its aging population, From a different perspective, Loudmila Belova, it was entitled "Experience of Artificial Intelligence Implementation in Japan"

(Belova,2020) it has oncludes with three main observations: first, the human pattern that once guided AI research has been largely overshadowed; second, new perspectives on how to engage with intelligent machines are gradually emerging; and third, there is an increasing need for international collaboration among research institutes to study the theoretical aspects of AI. The study also highlights Japan's strong prospects for establishing and developing bilateral AI cooperation with Russia and Kazakhstan.

1.8. Organization of the Study :

In order to address the issue scientifically, the study has been divided into two main parts as follows: the first part discusses the theoretical aspect of the research (Artificial Intelligence).

The second part reviews the facts and Japan's experience with Artificial Intelligence. Finally, the last part presents recommendations for benefiting from Japan's experience in Artificial Intelligence.

2. Theoretical framework:

In this theoretical section of our study, we will review the nature of Artificial Intelligence and the key terms associated with it, in addition to addressing several important issues which we will clarify in the following points:

2.1 The concept of Artificial Intelligence :

He field of artificial intelligence (AI) has evolved significantly, growing from modest origins to a domain with a global impact. The definition of AI and its scope have shifted over time. Experts often joke that AI refers to everything computers are not yet able to do. While this may seem humorous, it reflects the idea that creating intelligent computers and robots is about developing something that does not currently exist. AI is a dynamic and ever-changing concept. In fact, even the definition of AI itself is fluid and has undergone changes throughout history. Kaplan and Haenlein describe AI as "a system's ability to accurately interpret external data, learn from it, and apply that learning to achieve specific goals and tasks through flexible adaptation", Poole and Mackworth (2010) define AI as "the field that investigates the creation and analysis of computational agents that act intelligently. (Bartneck & al, 2019, pp. 7-8)

Artificial intelligence refers to the creation of computer software that can perform tasks typically requiring human intelligence, essentially mimicking human behavior. AI technology is generally categorized into four main areas: machine learning (ML), natural language processing (NLP), image processing, and speech processing. (Lundin & Eriksson, 2016, p. 6)

There are many common definitions of artificial intelligence, which are: (Belova, 2020, p. 3)

- "scientific direction within which the problems of hardware or software modeling of

those types of human activity which are traditionally considered intellectual are set and solved”;

- " the property of intelligent systems to perform functions (creative), which are traditionally considered the prerogative of man”;

- "it is the science and engineering of making intelligent machines, especially intelligent computer programs; it is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable ”.

2.2 Related Terms to Artificial Intelligence:

There are many terms closely related to artificial intelligence: (Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry, 2024, pp. 9-10)

- **AI System:** An AI system (e.g., machine, robot, or cloud system) operates with varying autonomy and includes software with a learning function. It produces outputs, such as content, predictions, recommendations, and decisions, based on human-defined goals. It uses models that represent data, knowledge, and processes, developed using artificial intelligence techniques. An AI system operates at different levels of autonomy and adaptability.
- **Advanced AI :**SystemThe most advanced AI systems, including cutting-edge foundation models and generative AI systems.
- **AI Model (ML Model):**A model integrated into an AI system, created through machine learning using training data, producing predictions based on input. It's a mathematical structure generating inferences or predictions based on data.
- **AI Service:**A service utilizing AI systems that provide value to business users. It includes both the AI system technologies and non-technological approaches, such as human monitoring and communication with stakeholders.
- **Generative AI:**AI developed from models that can generate text, images, programs, and more.
- **AI Governance:**The design and operation of systems by stakeholders to manage AI-related risks, ensuring they are acceptable to stakeholders and maximizing positive impacts.

2.3 Features of Artificial Intelligence Application:

He use of AI in various systems brings numerous advantages, For example: (Simpson, 2024, p. 15)

When AI is applied to a data warehouse, it can:

- Optimize pricing strategies using historical booking data.
- Predict customer preferences and suggest personalized travel packages.

When AI is integrated with a data lake, it can:

- Analyze social media sentiment to understand public opinion on different travel destinations.
- Use image recognition on social media photos to pinpoint the most popular tourist spots .
- Evaluate customer feedback to identify areas for improvement and enhance service quality .

The combination of AI, data warehouses, data lakes, and cloud infrastructure creates a scalable and adaptable environment for managing and extracting insights from diverse types of big data. Together, they enable travel companies to offer exceptional and tailored travel experiences.

2.4 Types of AI Systems:

There are many types of AI systems. Here, we will briefly describe a few. Knowledge representation is a key AI challenge that focuses on how information should be represented so that a computer can organize and use it effectively. In the 1960s, expert systems were introduced as knowledge-based systems designed to answer questions or solve narrowly defined problems within a specific domain. These systems often embed rules that capture the knowledge of a human expert. For example, mortgage loan advisor programs have long been used by lenders to assess the creditworthiness of an applicant. Another general type of AI system is planning systems. Planning systems aim to generate and organize a series of actions, often conditioned on the state of the world and uncertain factors. The Hubble Space Telescope, for instance, used an AI planning system called SPIKE. Computer vision is a subfield of AI focused on the challenge of converting data from a camera into knowledge representations. Object recognition is a common task tackled by researchers in this area. Machine learning, on the other hand, is focused on developing algorithms that allow a computer to improve its performance on a well-defined task through experience. Machine learning is explained in more detail in the sections that follow. AI currently works best in constrained environments but struggles with open-world scenarios, poorly defined problems, and abstractions. Constrained environments include simulated settings or situations where prior data accurately reflects future challenges. The real world, however, is open-ended, with new challenges constantly emerging. Humans use solutions from prior, related problems to address new ones. AI systems have limited capacity to reason analogically across different situations, often requiring them to learn new solutions even for closely related problems. In general, they lack the ability to reason abstractly and use common sense to generate solutions to poorly defined problems . (Bartneck & al, 2019, pp. 11-10)

3. Facts about Japan's Experience in Artificial Intelligence :

3.1 japan status on Artificial Intelligence

In 2016, Japanese Prime Minister Shinzō Abe established the "Artificial Intelligence Technology Strategy Council" to guide the country's AI development. By 2018, AI became part of Japan's "Integrated Innovation Strategy," aiming to significantly increase funding and develop young professionals in the AI field. A key aspect of Abe's strategy is improving the use of big data across industries. In 2017, Japan introduced an AI chatbot named "Mirai," symbolizing the future, as part of a project to make local government more accessible to citizens. In July 2017, Japan published the Draft AI R&D Guidelines, acknowledging the potential of AI to solve global issues but also recognizing risks like lack of transparency and loss of control. The guidelines aim to protect users' benefits and reduce risks, working towards a "Wisdom Network Society."

The guidelines emphasize five key principles: (García, 2019, pp. 28-30)

1. Promote a human-centered society where AI enhances lives while respecting dignity and autonomy.
2. Share non-binding guidelines globally, recognizing AI's far-reaching impact beyond national borders.
3. Balance AI benefits and risks by fostering innovation and competition while respecting democratic values.
4. Ensure neutrality in AI R&D, avoiding excessive burdens on developers amid rapid technological progress.
5. Continuously review and revise the guidelines through international collaboration, adapting to AI's ongoing advancements.

3.2 AI in Japanese Society and Economic Perspective:

The impact of AI and technology on Japan's economy and society is profound. However, there is uncertainty about how these technologies will replace human labor, particularly outside manufacturing. While there are significant technological challenges, issues related to infrastructure, legal frameworks, and public acceptance also exist, including concerns about consumer protection, data privacy, intellectual property, and commercial contracts. The government is developing regulations for AI providers, but questions remain about their potential impact on the industry. AI has the potential to improve production efficiency, create business growth, and foster innovation across industries like healthcare, education, and transportation. AI is expected to help Japan address long-term production and economic growth challenges. However, concerns exist about AI misuse, especially regarding ethical dilemmas and safety. Japan's government is keen on establishing international guidelines for AI governance and is promoting domestic AI research, particularly through the Tokyo-based AI Research Center (AIRC).

Collaboration between industry, academia, and government is key to promoting social integration of AI technologies. Despite AI's promise, the technology poses risks, especially concerning job displacement, safety, and regulatory issues. Japan's AI market is forecast to grow significantly, with some projections indicating AI could perform nearly half of the country's jobs by 2035. However, Japan's corporate adoption of AI has been slower compared to other countries, in part due to a focus on protecting intellectual property. Nevertheless, Japan aims to incorporate AI into its future economic strategies. By 2030, AI is expected to significantly contribute to Japan's economy, particularly in the transportation sector. The potential for generative AI to boost labor productivity could significantly impact the country's GDP. Despite challenges like the recent recession, AI is expected to continue reshaping Japan's economy, especially in manufacturing, which remains the largest sector in terms of labor productivity. (Prakash, 2024, pp. 880-883)

3.3 the key facts about artificial intelligence in Japan :

AI research in Japan began 30 years late and is facing a shortage of personnel. To compensate for this delay, many studies are being conducted in this field, with the National Institute of Advanced Industrial Science and Technology (AIST) being the largest AI research center in Japan. AI development is considered a national necessity, especially with the high working hours that led the government to adopt a law to prevent death from overwork. The AI market is expected to reach \$24 billion by 2024. Here are the key facts about artificial intelligence in Japan (Belova, 2020, pp. 5-8):

- **Personal Assistants for Office Workers:** Robotic Process Automation (RPA) is a field where digital robots replace human employees, automating tasks previously managed by people. RPA leverages AI and machine learning, helping tasks like expense report checks, traditionally time-consuming, be done quickly and accurately. It allows employees to focus on more important tasks by automating routine processes.
- **Challenges in Japan:** Japan faces a workforce shortage due to declining birth rates and an aging population. To maintain sustainable growth, workplace efficiency is becoming crucial, and automating tasks helps employees use their time more effectively.
- **Robotic Innovations in Japan:** Japan is a world leader in robotics, with many companies like Sony and Honda, and universities like Waseda, working on robot development. Robots are created for various tasks, including dancing, driving, and even playing music.
- **Automation in Tasks:** Japan is advancing robots to navigate crowded places, using AI to predict pedestrian density and improve evacuation routes during emergencies.

- **AI for Shoplifting Prevention:** AI is used in Japan to detect shoplifting, where systems analyze customer behavior via security cameras to identify suspicious actions and alert store staff.
- **AI in Healthcare:** The Japanese government is working with businesses and academia to incorporate AI into hospitals to alleviate doctor shortages and reduce healthcare costs, by automating tasks like updating patient records and analyzing medical images.
- **AI in Education:** Japan plans to introduce AI into schools to analyze student performance, identify strengths and weaknesses, and create individualized learning programs.

3.4 Developments In Japan Are Favorable For AI:

The political, economic, societal, technological, and legal developments in Japan are shaping a favorable environment for AI growth. (Dirksen & Takahashi , 2020, pp. 19-22)

Political:

- Japan aims for self-sufficiency in technology, driving policies that promote AI innovation and investment in AI knowledge centers.
- The government's "Society 5.0" vision emphasizes AI as a core technology, aiming to lead in practical AI applications.
- With an aging population and labor shortages, Japan is increasingly turning to automation, supported by AI to meet workforce needs.
- Japan faces an AI talent shortage but plans to attract foreign experts and reform its education system.

Economic:

- Despite an economic downturn due to the pandemic, Japan continues to invest in AI development, especially in industries less affected by the crisis.
- The shrinking workforce, due to aging and low birth rates, is driving automation and robotization, with AI facilitating these transitions.
- The government is investing in AI-backed medical technologies, which were especially crucial during the pandemic.

Society:

- Japan's aging population is pushing for advancements in healthcare and medical AI technologies, aiming to lead globally in this area.

- The public is generally accepting of AI, particularly in robots that resemble human behavior, aiding their integration into daily life.
- Consumer demand for AI-driven services, especially for remote and online services, is rising. AI technology is transforming sectors like shopping, meetings, and healthcare.

Technological:

- AI is playing a key role in improving security by detecting anomalies in data usage and access patterns.
- Japan is focusing on robotization, leveraging its advanced industrial robots to create a robotics hub.
- AI is driving software developments that rely more on updates than hardware changes.

Legal:

- Japan is updating its legal framework to regulate data usage and facilitate AI development, including secure medical data sharing systems.
- The government is working to ensure that legal and ethical standards keep pace with AI advancements, emphasizing a human-centric approach in line with international agreements.
- The COVID-19 pandemic has accelerated the need for legal updates, such as allowing digital signatures to replace physical ones.

3.5 breakdown of Japan's AI market by sector

According to the Japanese government, AI technologies are projected to generate an economic return of approximately JPY 121 trillion by 2045. A study by the Ernst & Young Institute, a Japanese think tank, estimates that the size of the AI market will grow from about JPY 3.7 trillion in 2015 to JPY 23 trillion in 2020, marking a six-fold increase. By 2030, the market size is expected to reach approximately JPY 87 trillion. The breakdown of the AI market by sector is presented in the table below. The transport sector, which includes driverless taxis and trucks, is anticipated to show the largest growth over the forecast period, reaching JPY 30.5 trillion by 2030. The manufacturing sector, which includes self-driving cars, is expected to grow to around JPY 12.2 trillion by 2030. (Lundin & Eriksson, 2016, p. 15)

Table N°01: breakdown of Japan's AI market by sector (2015 – 2030)

Type of sector	2015	2020	2030
Agriculture, forestry & fishery	2.8	31.6	384.2
Manufacturing	112.9	2,965.8	12,175.2
Construction	79.1	1,215.7	5,922.9
Electricity, gas & communications	30.0	521.7	1,881.0
Information services	182.5	824.5	2,373.1
Wholesale & retail	1,453.7	4,684.4	15,173.3
Financial & insurance	596.4	2,261.1	4,731.8
Real estate	4.9	242.6	485.3
Transport	0.1	4,607.5	30,489.7
Distribution	46.5	144.3	503.5
Technical services	9.0	244.0	614.9
Advertising	633.1	1,930.5	3,604.7
Entertainment	226.0	599.0	1,510.4
Education	203.0	503.9	928.5
Medical care and welfare	34.3	576.1	2,182.1
Living-related services	130.8	1,711.1	4,001.5
Total	3,745.0	23,063.8	86,962

Source: (Lundin & Eriksson, 2016, p. 15)

The table shows the projected distribution of Japan's AI market by sector from 2015 to 2030. Overall, there is a significant increase across all sectors, indicating the growing role of AI in shaping Japan's future economy. Here are some key observations:

- **Transport Sector:** The transport sector shows the largest growth, expected to reach JPY 30.5 trillion by 2030, up from JPY 0.1 trillion in 2015. This dramatic increase reflects the high expectations for the development of driverless vehicles, including taxis and trucks, which are seen as a major contributor to the AI market.
- **Manufacturing Sector:** The manufacturing sector, which includes self-driving cars, is also projected to see substantial growth, reaching approximately JPY 12.2 trillion by 2030. This is a significant rise from JPY 112.9 billion in 2015, highlighting the transformative effect of AI on industrial processes and automation.
- **Wholesale & Retail:** This sector shows a marked increase from JPY 1.45 trillion in 2015 to JPY 15.17 trillion by 2030. The use of AI in retail, such as personalized shopping experiences and inventory management, is driving this growth.
- **Financial & Insurance:** The financial sector is also expected to experience a significant increase, from JPY 596.4 billion in 2015 to JPY 4.73 trillion by 2030. AI is becoming crucial for applications in financial analysis, risk assessment, and customer service in this sector.

- **Medical Care and Welfare:** The medical sector sees notable growth as well, with an estimated increase from JPY 34.3 billion in 2015 to JPY 2.18 trillion by 2030. AI is expected to play a crucial role in medical diagnosis, patient care, and healthcare management.

In summary, the table illustrates the enormous potential of AI to impact a variety of industries, with significant market growth expected across multiple sectors. The rapid expansion in transport, manufacturing, retail, and medical sectors showcases AI's wide-reaching influence on Japan's economy and its transformation into a more technology-driven society.

4. CONCLUSION:

This study aimed to explore the significant role of Artificial Intelligence (AI) in Japan's socio-economic development, evaluating its impact on both economic productivity and social transformation. Through examining the various applications of AI across Japan's sectors, we have seen how AI has become a key pillar in driving growth, particularly in industries such as manufacturing, healthcare, transportation, and education.

Japan's success in the AI field can be attributed to several factors: a supportive government strategy, focused investment in AI research, and an innovative culture. The government's proactive policies, such as the "Artificial Intelligence Technology Strategy Council" and the "Integrated Innovation Strategy," have allowed Japan to integrate AI into its societal and economic fabric effectively. Moreover, Japan's commitment to overcoming challenges, including labor shortages, through AI-driven automation, has greatly contributed to its global leadership in this area.

On the economic front, AI is poised to have a transformative impact, with the projected growth of AI markets across various sectors, particularly in transportation and manufacturing. This shift is not only likely to drive economic development but also significantly enhance Japan's competitive edge in the global market.

Socially, AI is helping Japan address critical challenges such as an aging population and shrinking workforce. AI-driven healthcare solutions, personalized education, and the automation of labor-intensive tasks are leading to higher productivity, improving the overall quality of life. However, while AI's integration into Japanese society promises immense benefits, it also raises concerns about job displacement, privacy, and ethical considerations. Thus, Japan's focus on AI governance and regulations to ensure responsible development and application of AI is crucial for maintaining societal trust.

In conclusion, Japan's journey with AI exemplifies how technology can be harnessed to address societal and economic challenges. The success of AI in Japan serves as a model for other nations, particularly those facing similar demographic or economic challenges. As Japan continues to integrate AI into its future strategies, its experience will likely offer valuable insights for countries aiming to leverage AI for sustainable growth, enhanced productivity, and social progress.

This study also highlights the importance of continued investment in AI research, human resources, and international collaboration to fully realize the potential of AI and manage its implications.

4.1 Results:

- Japan's AI success is supported by a highly skilled workforce and strategic investments in AI education and talent.
- The establishment of key institutions like AIST and government initiatives, such as the Artificial Intelligence Technology Strategy Council, demonstrate Japan's commitment to AI growth.
- AI adoption helps Japan address labor shortages and economic stagnation, particularly through automation and robotics.
- The AI market is expected to significantly boost Japan's economy, especially in sectors like transportation, manufacturing, and healthcare.
- AI has improved healthcare, social services, and productivity, contributing to an enhanced quality of life.
- The growth of AI across various sectors, like transportation and retail, is strengthening Japan's global competitiveness and innovation.
- Artificial intelligence has helped Japan achieve remarkable economic and social growth.
- The Japanese experience is unique and should be emulated.
- Artificial intelligence has contributed to improving the quality of life in Japan.

5. List of references:

1. Bartneck, C., & al. (2019). *An Introduction to Ethics*. Singapore: the European Project “Europe’s ICT Innovation Partnership With Australia, Singapore & New Zealand (EPIC).
2. Belova, L. (2020). Experience of Artificial Intelligence Implementation in Japan. *E3S Web of Conferences*(159).
3. Dirksen, N., & Takahashi , S. (2020). ARTIFICIAL INTELLIGENCE IN JAPAN 2020. Netherlands Enterprise Agency.
4. Guillermo García .(2019) .*Artificial intelligence in japann: Industrial Cooperation and Business Opportunities for European Companies* .Tokyo, Japan.: EU-japan centre.
5. Lundin, M., & Eriksson, S. (2016). *Artificial Intelligence in Japan (R&D, Market and Industry Analysis)*. EU-JAPAN CENTRE FOR INDUSTRIAL COOPERATION.
6. Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry. (2024). *AI Guidelines for Business*.
7. Prakash, M. (2024). AI IN JAPANESE SOCIO-ECONOMIC SPHERE AND ETHICAL APPROACH. *International Journal of Creative Research Thoughts*, 12(7).
8. Simpson, J. (2024). *INTRODUCTION TO ARTIFICIAL INTELLIGENCE (AI) TECHNOLOGY, GUIDE FOR TRAVEL & TOURISM LEADERS*. World Travel & Tourism Council.