

## The Influence of Artificial Intelligence Development on Culture in Japan

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### ABSTRACT

The development of artificial intelligence (AI) is playing a key role in the transformation of Japanese culture and society. As a leading technological nation, Japan is committed to integrating technological innovation into daily life, including preserving language, traditions, performing arts, and education. Japanese people's perceptions of AI vary. Some see AI as man's friend and plan for its use in daily life, while others are skeptical of potential problems such as loss of human engagement and economic impact on traditional jobs. There are efforts to integrate technology in creative industries, such as movie screenwriting and comics, although the goals are still unclear. However, there are warnings against the risks of relying too much on AI, especially regarding economics and potentially harmful dependencies. AI developments in Japan create a dynamic between technological advancement and cultural preservation, with society during a transformation that requires a balance between innovation and the preservation of traditional values.

**Keywords:** Artificial Intelligence, Technology, Japanese culture

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### INTRODUCTION

Artificial Intelligence, or AI, consists of the words Artificial "something simulated, not real, but not fake" and Intelligence "a complex term that can be interpreted as logic, self-awareness, learning, and knowledge." Waterman (1986) explained that artificial intelligence is a field of computer science required to advance the intelligence of software in computers. Therefore, it can be concluded that artificial intelligence is not limited to human intelligence but also applies to tools or systems. Hence, AI can be defined as the capability of a tool or system to adapt in order to achieve goals in an environment that potentially affects the behavior of the system. Society 5.0 was first introduced by the Japanese government, describing a societal revolution utilizing technology while considering humanities and human aspects. Thus, AI was one of the strongest development fields in 2015 and this is likely to continue in 2016 (Lundin & Eriksson, 2016). However, at present, the Japanese government is betting on AI as the key to writing Japan's future blueprint. As is well known, AI will transform life much faster than imagined. While other countries focus on catching up with the fourth industrial revolution, Japan has declared its intention to start implementing Society 5.0. Society 5.0 was initiated by the Japanese government in response to the issues in their country, considering that the majority of Japan's population is senior and elderly (Yuswohady, 2018). Additionally, the goal of Society 5.0 is to build a human-centered society where every economic event and source of cultural challenge is realized, and individuals can participate in an active lifestyle. Although Society 5.0 is Japan's development plan, its objectives are comparable to the SDGs (sustainable development goals), and thus not limited to Japan alone. The issues faced by Japan, such as an aging population, declining birth rates, decreasing population, and mature foundations, are problems that will eventually be faced by many other countries. Japan divides its AI policy into three areas: internal affairs and communications, economic trade and industry, education, culture, sports, and science and technology. In the private sector, there are three major Japanese industries that are very active in AI development: the automotive industry, robotics, and electronics. The global AI market in Japan estimates a compound annual growth rate between 2018 and 2025 to vary from 33% to 55%. Given Japan's long history of leveraging technology and leading in many scientific advancements, there is confidence that artificial intelligence (AI) and robots will be able to sustain production, enhance human labor, and help the country advance its technology. Currently, Japan has between 200-300 companies related to AI (Data Artist, 2020). Japan is the world's largest producer of industrial robots and ranks third in artificial intelligence research and development, after China and the United States (OSA DC, 2018). Popular culture is a product of industrial society, where activities of meaning-making and cultural products are presented in large quantities, often with the help of production, distribution, and mass reproduction technology, making them easily accessible to the public (Heryanto: 2012). Popular culture itself arises from the daily interactions and needs of a society. In Japan, popular culture includes anime, manga, cosplay, games, J-pop, and more. According to Hidetoshi Kato in the book Handbook of Japanese Popular Culture, the term popular culture in Japanese is more accurately referred to as taishu bunka (mass

culture) and there are other terms such as *minshuu bunka* (folk culture) and *minzoku bunka* (national culture). Anime and manga are significant works of popular culture in Japan, becoming iconic representations of the country. Anime has now become an international commodity, increasingly attracting the attention of academics and practitioners from various fields and countries. According to MacWilliams (2011: 5), there are two urgencies in researching anime. First, anime is a key part of Japan's popular visual culture, with anime and manga being integral to the visual aspects of Japanese society. Second, anime plays an important role in shaping the global mediascape (both print and electronic). Manga, commonly known as comics, has specific meanings in Japanese. In Japanese, manga means comic books, animated films, funny cartoons, and caricatures. Manga culture is deeply ingrained in the daily life of Japanese society, leading to social phenomena such as comic markets, *otaku*, *doujinshi*, and *cosplay*.

## METHOD

The method used in this research is qualitative research. The subjects of this research include the perceptions of the Japanese people, with data taken based on responses obtained from Japanese Quora social media, as well as articles and news about the Japanese perception of AI development. For data related to popular culture in Japan, such as Anime and Manga, the author obtained several data from articles, journals, and books. The object of this research is Artificial Intelligence (AI) technology.

Reading various articles and news themed around AI and Japan to obtain the necessary data. Highlighting sections that contain cultural values, as well as the perceptions of the Japanese people towards development. Recording the perceptions of the Japanese people regarding the questions the author asked on Quora social media.

The researcher classifies or groups the data in the form of sentences or paragraphs obtained based on their influence on Japanese culture and public perception. The researcher discusses the cultural values and perceptions of Japanese society towards the development of AI. The researcher draws conclusions.

## RESULTS AND DISCUSSION

### Results

From the analysis of The impact of Artificial Intelligence Development on Culture in Japan; Anime and Manga it was found that In the Anime and Manga industries, AI accelerates the production process by automating certain tasks, enhancing the quality of animation, and allowing artists to focus on creative aspects. The influence of AI on Japanese culture is reflected in efforts to preserve language, traditions, performing arts, and education. The use of artificial intelligence for the preservation of cultural heritage, including ancient manuscripts and traditional performing arts, demonstrates the Japanese society's commitment to their cultural identity. Previous, according to Mac William; Manga and Anime as contemporary Japanese visual culture, Manga and Anime as mass art, Manga and Anime as media Technology.

From the perspective of Japanese society, perceptions of AI development vary. Some see AI as a human companion, planning to use artificial intelligence in various aspects of daily life, while others are more skeptical, highlighting potential issues such as the loss of human involvement or the economic impact on traditional jobs. Considerations for the use of AI in the creative industry, such as in film and comic scriptwriting, show efforts to integrate technology into cultural production, though there remains uncertainty about the true purpose, whether for efficiency, creative recognition, or other goals. However, there are also warnings about the risks of over-reliance on AI, particularly in economic aspects and potential detrimental dependencies. Critical thinking about the social and economic impacts of AI usage reflects an awareness of the challenges that may arise in adopting this technology. Overall, the development of AI in Japan creates a dynamic between technological advancement and cultural preservation efforts, with society being in the midst of a transformation that requires a balance between innovation and the preservation of traditional values.

Currently, popular culture is surpassing other cultures, including anime culture, which has influenced and transformed many countries. Anime, derived from the English word "animation," is used by Japanese people to refer to animated shows. Today, anime is commonly used to describe animated shows or films from Japan. Anime has two meanings: the first is the term used by Japanese people to refer to any animated film, regardless of its origin. The second meaning is that, outside Japan, anime refers specifically to animated films that originate from Japan (Gilles Poitras, as cited in Nugroho and Hendrastomo 2016). The history of manga in Japan can be traced back to the 12th century. According to Natsume Fusanosuke, Japanese society has long had a close relationship with story mediums that combine visual and written elements, such as 'emakimono' which developed in the 12th century, as well as 'kibyoshi' and 'ukiyo-e' that flourished during the Edo period. Manga is a form of contemporary and popular culture that emerged after World War II and has had a significant impact on Japanese life. The manga that developed from the post-war period to the present was pioneered by Osamu Tezuka. Tezuka is dubbed the "manga no kamisama" (god of manga) for making his manga stories more lively. The rapid growth of the commercial manga industry in the 1960s spurred the development of amateur and non-commercial manga production. In Japan, amateur manga is known as 'doujinshi'. The word 'doujinshi' is a combination of 'doujin' and 'shi'. 'Doujin' refers to people who share the same interests, while 'zasshi' means magazine in Japanese.

## Discussion

### 1. The Impact of Artificial Intelligence Development on Culture in Japan

Moreover, the impact of AI development on Japanese culture is also reflected in efforts to preserve endangered languages and traditions. Various projects use artificial intelligence to document and maintain unique cultural heritage, such as the use of AI in the preservation of ancient manuscripts and historical artifacts. This technology is not only limited to preserving physical objects but also helps in documenting rituals, stories, and traditional practices that are integral to Japan's cultural identity. In the field of performing arts, AI also contributes to the preservation of traditional culture through the development of technology that enables the simulation and recreation of traditional Japanese performances. The equipment and costumes used in these performing arts can be replicated with high precision through the assistance of AI, maintaining the authenticity and originality of the cultural heritage being passed down.

The education sector has also undergone significant transformation with the adoption of AI technology in Japan. Intelligent Tutoring Systems (ITS) have become a focus of development, providing a personalized learning approach tailored to individual needs. This not only enriches the learning experience for students but also ensures that cultural values and traditions are integrated into the curriculum, creating a generation connected to their cultural roots. Thus, the development of AI in Japan impacts not only the technological aspects but also serves as an important tool in the efforts to preserve and pass down the cultural wealth that has existed for centuries.

#### a. Anime

The development of Anime to date shows a tendency that its growth as part of Japanese popular culture is also followed by the development of the creative industry, which is a derivative product of Anime itself. Artificial intelligence has many positive and challenging impacts on the Anime industry. The positive impacts can revolutionize the animation process. AI can automate tedious tasks such as backgrounds, crowd scenes, and even entire animations. This automation allows animators to focus more on creative aspects such as character design and storytelling. As a result, the quality of animation will increase, with AI being able to generate more realistic textures and shadows, making the animation more vibrant and immersive. AI can also create new animation techniques based on real-world physics, giving rise to fresh, unconventional styles and aesthetics.

However, the adaptation of AI is also fraught with concerns. A survey of Anime workers in Japan found that more than 90% of respondents were worried about AI, with the biggest concerns being copyright infringement and job security. Cases of AI-generated content infringing on artists' work and the use of AI to mimic voice samples without proper credit have heightened these concerns. As a result, there is a push for stricter guidelines and regulations to protect creators' rights while still allowing for technological advancements.

Overall, while AI offers exciting opportunities for innovation and efficiency in Anime production, it also presents challenges that need to be carefully managed to ensure the ethical and fair use of technology.

#### b. Manga

Artificial Intelligence (AI) also has a significant impact on the manga industry. AI is used to expedite the manga creation process by automating aspects such as coloring and background design. This allows artists to focus more on creative elements like plot and characters. AI can also generate artwork styles resembling those of human artists, aiding in the rapid and efficient creation of content. However, there are concerns about copyright infringement and the loss of jobs for human artists, similar to concerns in the anime industry.

### 2. Public Perception of AI Development in Japan

Society consists of individuals living together, wherein living together can be interpreted as living within a social structure, and this situation arises when humans engage in relationships. In relation to information systems, information can be defined as a collection of structured data that we communicate through spoken language, newspapers, videos, and so on. An information society, or commonly referred to as an information society, is a term used to describe a society and an economy that can make the best use of information and new communication technologies (Manuel Castells, 2000). It should be noted that informational and networked societies are characterized by widely distributed information that is accessible to anyone.

Based on the data obtained from the question I uploaded on the social media platform Quora, several Japanese individuals responded regarding their perceptions of AI development. The author collected data from several Japanese individuals, approximately 13 responses, with 5 of them being presented in the text.

#### a. Perception regarding robots as human companions

一つは「人類の友人」としてのロボットの思想です。日本人は人造人間をものすごく欲する民族です。奴隷文化が薄かったせいもあるのかよくわかりませんが、やたらと従順な友を欲しがります。これは、アトムをはじめとするロボット技術の潮流ですが、そこにAIは自律性として欠かせないものになると考えています。

*Hitotsu wa 'jinrui no yūjin' to shite no robotto no shisōdesu. Nihonjin wa homunkurusu o monosugoku hossuru minzokudesu. Dorei bunka ga usukatta sei mo aru no ka yoku wakaranai desu ga, yataru to jūjun'na tomo o hoshi garimasu. Kore wa, atomu o hajime to suru robotto gijutsu no chōryūdesuga, soko ni AI wa jiritsu-sei to shite kaka senai mono ni naru to kangaete imasu.*

One concept is "robots as human companions." The Japanese society highly desires artificial beings (a strong desire for androids), perhaps due to the lack of a culture of slavery or other reasons that are not quite clear. They seem to greatly desire obedient companions. This reflects the direction of robot technology development, such as ASIMO and others, where AI is considered an essential element in achieving autonomy. This opinion was expressed by Masa Ishiguro (a graduate of Nagoya University in 1993).

In other words, one concept under consideration is to make robots "human companions." Where artificial intelligence is seen as a key element in achieving autonomy in the interaction between humans and robots. On the other hand, many argue or feel dissatisfied with current AI because inductive AI products have their limits. With the Japanese tendency to get bored quickly compared to the learning speed of AI.

**b. Perception in the field of technology (animation)**

もう一つは、消費としての創作物ですが、これに関しては、現段階でAIの助けを借りられないか検討しています。漫画や小説といった、関わる人数が少ないコンテンツであっても、ストーリー展開や校正やコマ割りなどにAIを用いて、より勝率を上げようとしています。またアニメでは制作に時間と人数が関わるので、AIで効率化できないか検討されている様子です。実際、今後十数年で、AIは文化に関わる人間の補助として登場していることでしょう。

Mōhitotsu wa, shōhi to shite no sōsaku-mono desu ga, kore ni kanshite wa, gen dankai de AI no tasuke o kari rarenai ka kentō shite imasu. Manga ya shōsetsu to itta, kakawaru ninzū ga sukunai kontentsudeatte mo, sutōri tenkai ya kōsei ya koma-wari nado ni AI o mochiite, yori shōritsu o ageyou to shite imasu. Mata anime dewa seisaku ni jikan to ninzū ga kakawarunode, AI de kōritsu-ka dekinai ka kentō sa rete iru yōsudesu. Jissai, kongo jūshūnen de, AI wa bunka ni kakawaru ningen no hojo to shite tōjō shite iru kotodeshou.

Another aspect is the artwork as consumption, considering whether AI can be used at this stage. Although content such as manga or novels involves relatively few people, there is an attempt to increase the chances of success by using AI for story development, editing, and panel distribution. For example, in anime production, which involves time and manpower, it is being considered whether AI can improve efficiency. It is estimated that in the next decade, AI will emerge as a tool for humans in cultural aspects.

**c. Perceptions of AI among the Japanese populace**

日本文化というより、技術進歩の影響ですね。確かに人工知能を更に向上すると、社会が夢のように発展と進歩が望めますが、人工知能にも莫大な開発力とかなりの費用と沢山の材料と負担と代償は付き物です。人工知能を多く取り入れた後、人工知能に関わる維持コストと労働者に対する雇用問題にも深く関わってきます。人工知能に頼りすぎたら当然として、人間にマストとなる基本能力を疎かになり、人工知能の不備による重大な事故が起こるようになります。人工知能に頼りすぎて、人間関係に悪影響を及ぼしたりします。人工知能を維持する為にかなりのコストを費やすことにもなり得ます。裕福な家庭なら問題はないけど、一般家庭だと経済的に余裕がなく、人工知能に頼れない所もあります。

Nippon Bunka to iu yori, gijutsu shinpo no eikyōdesu ne. Tashika ni jinkō chinō o sarani kōjō suru to, shakai ga yume no yō ni hatten to shinpo ga nozomu masuga, jinkō chinō ni mo bakudaina kaihatsu-ryoku to kanari no hiyō to takusan no zairyō to futan to daishō wa tsuki monodesu. Jinkō chinō o ōku toriireta nochi, jinkō chinō ni kakawaru iji kosuto to rōdō-sha ni taisuru koyōmondai ni mo fukaku kakawatte kimasu. Jinkō chinō ni tayori sugitara tōzen to shite, ningen ni masuto to naru kihon nōryoku o orosoka ni nari, jinkō chinō no fubi ni yoru jūdaina jiko ga okoru yō ni narimasu. Jinkō chinō ni tayori sugite, ningen kankei ni akueikyō o oyoboshi tari shimasu. Jinkō chinō o iji suru tame ni kanari no kosuto o tsuiyasu koto ni mo narimasu. Yūfukuna kateinara mondai nai kedo, ippan kateda to keizai-teki ni yoyū ga naku, jinkō chinō ni tayorenai tokoro mo arimasu.

This is more of an influence of technological advancement rather than Japanese culture. It is true that if we continue to advance artificial intelligence, we can expect society to develop and progress like a dream, but artificial intelligence also has a very large development power, high costs, many materials, burdens, and compensations. After incorporating a lot of artificial intelligence, the maintenance costs associated with artificial intelligence and labor issues for workers will also be highly involved. If we rely too much on artificial intelligence, we will naturally neglect the basic abilities that are important for humans, and serious accidents will occur due to the lack of artificial intelligence. Relying too much on artificial intelligence can have a negative impact on human relationships. Maintaining artificial intelligence also requires high costs. This may not be a problem if you are a wealthy family, but if you are an ordinary family, you may not be able to rely on artificial intelligence because you cannot afford it.

## CONCLUSION AND SUGGESTION

The conclusion and suggestions of this research are presented based on the research finding. The conclusion is a summary of the research findings that have been described in the previous chapter. The suggestions are intended towards researchers who wish to do a similar study in the future.

Based on the research findings, there are In the Anime and Manga industries, AI speeds up production processes by automating certain tasks, improving animation quality, and allowing artists to focus on creative aspects. From the perspective of Japanese society, perceptions of AI development vary. Some see AI as a human companion, planning to use artificial intelligence in various aspects of daily life, while others are more skeptical, highlighting potential issues such as the loss of human involvement or the economic impact on traditional jobs. Considerations for the use of AI in the creative industry, such as in film and comic scriptwriting, show efforts to integrate technology into cultural production, though there remains uncertainty about the true purpose, whether for efficiency, creative recognition, or other goals. However, there are also warnings about the risks of over-reliance on AI, especially in economic aspects and potential detrimental dependencies. Critical thinking about the social and economic impacts of AI usage reflects an awareness of the challenges that may arise in adopting this technology. Overall, the development of AI in Japan creates a dynamic between technological advancement and cultural preservation efforts, with society being in the midst of a transformation that requires a balance between innovation and the preservation of traditional values.

Based on the findings of this study, the writer wishes to provide several suggestions that may be useful for future studies. Further research is needed to understand the social and economic impacts of AI usage in various aspects of life in Japan. It is important to explore the ethical use of AI in the creative industry so that human jobs are not threatened. Regulations and guidelines should be thoroughly examined to protect copyright and worker safety in the use of AI. Additionally, it is necessary to investigate how AI can assist in the preservation of culture, including language, traditions, and performing arts. Finally, a balance between technological innovation and the preservation of traditional values must be maintained to ensure harmony in society.

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## REFERENCES

- Ahmad, A. (2017). Mengenal artificial intelligence, machine learning, neural network, dan deep learning. *J. Teknol. Indones.*, no. October, 3.
- Arief, N. N., & Saputra, M. A. A. (2019). Kompetensi baru public relations (PR) pada era artificial intelligence. *Jurnal Sistem Cerdas*, 2(1), 1-12.
- Bastin, N. (2022). *Apakah Itu Anime?: Panduan Praktis*. Nahason Bastin Publishing.
- Batubara, M. H. (2020). Penerapan Teknologi Artificial Intelligence dalam Proses Belajar Mengajar di Era Industri 4.0 dan Society 5.0. *Kampus Merdeka Seri 1: Menilik Kesiapan Teknologi Dalam Sistem Kampus*, 53.
- Bimantoro, A., Pramesti, W. A., Bakti, S. W., Samudra, M. A., & Amrozi, Y. (2021). Paradoks etika pemanfaatan teknologi informasi di era 5.0. *Jurnal Teknologi Informasi*, 7(1), 58-68.
- Budianto, F. (2015). Anime, cool Japan, dan globalisasi budaya populer Jepang. *Jurnal Kajian Wilayah*, 6(2), 179-185.
- Craig, T. J. (2015). *Japan Pop: Inside the World of Japanese Popular Culture: Inside the World of Japanese Popular Culture*. Routledge
- di Kalangan Anak, P. B. M., & Indonesia, M. Budaya Manga.
- Dirksen, N., & Takahashi, S. (2020). Artificial intelligence in Japan 2020. *Actors, Market, Opportunities and Digital Solutions in a Newly Transformed World*. Netherlands Enterprise Agency.
- Hafidhah, N. (2017). Analisis Nilai Budaya dalam Novel Lampuki Karya Arafat Nur. *JIM Pendidikan Bahasa dan Sastra Indonesia*, 2(4), 393-399.
- Karman, K. (2021). Strategi Dalam Mengembangkan Teknologi Kecerdasan Buatan. *Majalah Semi Ilmiah Populer Komunikasi Massa*, 2(2).
- Lundin, M., & Eriksson, S. (2016). Artificial intelligence in Japan (R&D, market and industry analysis). *EU-Japan Centre for Industrial Cooperation*.
- MacWilliams, M. (ed.) (2011). *Japanese visual culture: explorations in the world of Manga and Anime*. New York: M.E. Sharpe.
- McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (2006). A proposal for the Dartmouth summer research project on artificial intelligence, August 31, 1955. *AI Magazine*, 27(4), 12.
- Nugraha, P. A. (2017). Anime sebagai budaya populer (Studi pada komunitas anime di Yogyakarta). *E-Societas*, 6(3).

- Prasetyo, D. (2019). Memahami masyarakat dan perspektifnya. *Jurnal Manajemen Pendidikan Dan Ilmu Sosial*, 1(1), 163-175.
- Rozaq, A. (2019). Artificial Intelligence Untuk Pemula.
- YOSHIDA, H., & YENILMEZ, M. I. (2022). Artificial Intelligence and the Future of Work in Japan. *International Journal of Contemporary Economics and Administrative Sciences*, 12(2), 784-798.
- Zidni, Z. D. A. (2023). Tinjauan Pustaka Sistematis: Penerapan Artificial Intelligence Dalam Pembangunan Smart City. *Teknomatika*, 13(01), 67-72.
- Peter, M. (2023). Anime Industry: More than 90% of Workforce is Worried about AI <https://comicbook.com/anime/news/anime-animation-ai-jobs-fear/>
- Team, AnimationXpress. (2023). How Generative AI will Impact the Animation Industry <https://www.animationxpress.com/animation/how-generative-ai-will-impact-the-animation-industry/>
- Rauch, Stuart. (2023). How AI is Impacting Industries Worldwide <https://www.simplilearn.com/ai-artificial-intelligence-impact-worldwide-article>