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Praise the god of DX: A consideration of how to convince users to adopt transformation

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Praise the god of DX:

A consideration of how to convince users to adopt transformation

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Keywords: Strategies for digital transformation, business models for digital transformation, behavioral change, anthropological aspects

Abstract:

This essay examines the challenges hindering Digital Transformation (DX) in Japan, reflecting a nationwide lag in IT and DX adoption. Key barriers include legacy systems, a shortage of IT expertise, and cultural resistance. An anthropological perspective illuminates the cultural dimension of these challenges, revealing a deep-rooted attachment to tradition that impedes DX adoption. To overcome these cultural barriers, the essay proposes strategies emphasizing a gradual and respectful integration of digital solutions. Advocating for tailored strategies that acknowledge and facilitate the cultural shift is crucial for successful DX implementation in Japan.

- *Government initiatives for DX in Japan*
- *A case study of lagging digitization in Japanese workplaces*
- *Analysis of DX-related problems observed in the case study*
- *Cultural considerations as root causes of these problems*
- *Strategies for overcoming these challenges*

The subsequent sections of this essay will delve into these issues in order to identify effective ways to engage lagging adopters and unlock the potential of DX in Japan. The core of our proposal is to integrate DX seamlessly into everyday life, making it an intrinsic part of society.

1. Introduction

This essay examines the challenges of introducing digital transformation (DX) into traditional communities, focusing on the case of Japan. It explores a case study of lagging digitization in Japanese workplaces, reviews government initiatives to promote DX, and analyzes the underlying reasons for these difficulties. Drawing on anthropological insights, the essay proposes strategies for fostering the behavioral changes necessary for successful DX implementation.

Specifically, this essay will address the following key issues:

2. Government initiatives for DX in Japan

2-1 Government's definition of DX

The Japanese government's definition of Digital Transformation (DX) is not explicitly stated. However, it views DX as a comprehensive approach to enhancing society through digital technology. It aims to create a user-friendly digital environment that improves public services, individual well-being, and economic opportunities. This involves streamlining online services, developing digital infrastructure, fostering digital skills, and ensuring safety and security. Ultimately, DX is seen as a means to simplify lives, promote inclusivity, and drive innovation in Japan (Digital Agency, 2024; GOJ, 2024; Makishima, 2021).

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2-2 Promotion of DX by GOJ

Each year, The Ministry of Economy, Trade and Industry (METI) in Japan publicize the names of selected companies for the “Digital Transformation Stocks (DX Stocks)” initiative (METI, 2024b). This program identifies companies listed on the Tokyo Stock Exchange that are actively transforming their business models and management through the use of digital technology.

The selection aims to promote strategic IT utilization among Japanese companies, encouraging management innovation and improving competitiveness and productivity through digital technology. METI, in collaboration with the Tokyo Stock Exchange and the Information-Technology Promotion Agency, Japan (IPA), selects these companies to spread exemplary business models and foster a culture of digital transformation (DX) across various industries. The initiative also includes the “DX Grand Prix” for companies leading the digital era and the “DX Platinum Stocks” for those with outstanding continuous efforts in DX (METI, 2024a).

3. A case of lagged digitization found in Japanese workplace

In this section, a case of lagged digitization in Japan is presented. This is a case of a private university in rural Japan (not my workplace). One day in February 2024, I visited a professor there, the head of the university's information center with a Ph.D. in mechanical engineering. He complained, “My university administration is old-fashioned. Look, this is my salary slip printed on paper!” His colleague, who has a Ph.D. in economics, echoed the sentiment, asking, “Why should I stamp my seal (“*Inkan*” in Japanese) when I arrive at the office every morning? Why should I submit reports about my students printed and sealed on paper? I even had students visit to pick up their paper transcripts!”

The conversation turned to whether these professors had made requests to the university

administrators for changes. They had, several times each. The consistent response was, “Last year, we did so,” referring to the previous year's practices. One professor, who joined the faculty in 2023, inquired about procedures during the Covid-19 pandemic lockdown, when students couldn't pick up transcripts in person. He discovered that transcripts had been post-mailed. The professor with Ph.D. in economics continued: “The data of students transcripts are on the database, so printing is a waste of paper. Only granting students the access to their data will dramatically reduce the waste of paper and my time to manage the visits.”

While a university administration may not be a typical business entity, it still has a bureaucratic structure. In this case, the university had a well-organized structure, so efficiency would be expected. However, this case illustrates a lack of concern for operational efficiency. Are these lagging administrative practices typical of Japanese firms?

4. Analysis of DX-related problems observed in the case study

4-1 Challenges found during Covid-19

The problems highlighted in this case are prevalent in firms throughout Japan. The Japanese government has acknowledged a “digital defeat,” referring to the lag in IT and digital transformation among Japanese society and companies.

In 2020, even during the Covid-19 lockdowns, numerous cases were reported of people commuting to offices to print and affix seals to paper documents such as invoices, contracts, and receipts. Legally, electronic signatures have been enacted since 2001, making physical seals and signatures unnecessary.

These actions are widely recognized as hindrances preventing the successful adoption of digital transformation (DX) among traditional Japanese firms, as described in reports by PwC (PwC Japan, 2023) and BIZX (BIZX, 2023). Table 1 illustrates the challenges outlined in the report.

Table 1 Challenges of DX

Challenge	Description
Legacy Systems	Many Japanese companies rely on older, complex systems that are difficult to modernize. These systems require significant resources to maintain, which can limit the budget available for new IT developments.
Lack of IT Professionals	There is a shortage of IT professionals in Japan, which hampers the development and implementation of digital technologies.
Cultural Factors	Japanese companies tend to be risk-averse and may be slower to adopt new technologies.

4-2 Bright side of the Challenge

The government of Japan urges the policies to tackle with the problems of the first two items above. It is, however, the last one may be the most difficult and strong forces to raise the problems. Although the current situation appears challenging, there is a potentially optimistic and bright side as well. The McKinsey Digital Japan report identifies these lagging areas as key opportunities for further economic advancement. In other words, the lack of administrative efficiency creates significant room for digitization. McKinsey estimates that digitization could contribute 70% to future development, while the creation of new business accounts for 30% of value creation (McKinsey Digital Japan, 2020).

The promotion and user adoption of DX seem to be at a crossroads. Success largely depends on user adoption. The future of Japan's digital economy hinges on how well users embrace and adapt to these digital transformations. The potential for growth and innovation is vast, but realizing this potential depends on the active participation and acceptance of these digital changes by the users. In essence, user adoption is the pivotal factor that will

determine the trajectory of Japan's digital future.

5. Considerations about culture for the root causes of these problems

This section looks into the reasons from the perspectives of cultural view points, namely anthropological aspect and individualism. The first one relates the characteristics of Japan's "Yaoyorozu no kami." The second one relates Japan's individualism.

5-1 Anthropological aspects

"Yaoyorozu no kami" written in Japanese "八百万の神" is a term used in Japanese Shintoism to refer to a multitude of gods and spiritual beings. It encompasses a wide range of deities and divine entities that exist within Japan's natural and everyday life. The literal translation of this is "eight million gods," but it's essential to understand that this number is symbolic rather than a precise count and means "a lot" (Ashkenazi, 2003).

In Shinto belief, gods are not limited to specific temples or shrines but are present everywhere — in nature, daily activities, and even inanimate objects. Mountains, rivers, trees, rocks, animals, and celestial phenomena – all hold spiritual significance. Additionally, natural phenomena like thunderstorms, rain, wind, typhoons, and volcanic eruptions are also considered manifestations of divine energy (Ellwood & Reader, 1992). This is also explained by the concept of the animism (Tylor, 1889).

As shown in these definitions, the ruling behavioral patterns or disciplines associated with Japanese ***non-logical thinking style*** are deeply embedded in its culture. From the viewpoint of Japanese people, regardless of whether they are managers or employees, they must accept computers and other peripherals, and furthermore, the entire information technology system as a whole, as one of the gods. Unless they are

convinced that these technologies are part of “Yaoyorozu no kami,” they cannot collaborate with them.

5-2 Japan's individualism

Amplifying the *non-logical thinking* style described in the previous section, Japanese culture is recognized as one deeply rooted in Confucian traditions. For over two and a half centuries, under the Tokugawa Shogunate rule, the Zhu Xi school, known as Shushigaku (朱子学) in Japanese, served as the ruling principle.

This school of Confucianism, established by Zhu Xi (also known as Zhuzi) during China's Song Dynasty, is often called Neo-Confucianism. It emphasized the concepts of “li” (principle) and “qi” (vital energy) and promoted self-cultivation through moral introspection and adherence to social norms. It played a pivotal role in shaping the intellectual and cultural landscape of East Asia for centuries. The ruling class, known as Bushi, during the Tokugawa Shogunate, were encouraged to embrace this reinterpretation of classical Confucianism in response to the challenges posed by Buddhism and Taoism.

Since the introduction of Buddhism to Japan in 552 A.D., during the Asuka period, Shintoism and Buddhism intertwined, supported by the traditional belief in “Yaoyorozu no kami” (eight million gods), and coexisted as the mental and cultural core of Japan. Even when Christianity arrived in 1549 A.D., the Japanese accepted Jesus and Mary as part of the “Yaoyorozu no kami,” until the Tokugawa administration expelled Catholic missionaries and banned Christianity in 1612 (Kitagawa, 1990).

Under the Tokugawa administration, while Buddhism mixed with Shintoism even played a major role as a local administrative body. During the Edo period, the “Danka system” (檀家制度 *Danka Seido*), Confucianism centered official rule of the nation (Vesey, 2010). These history supports the idea that Japan had been following the

collectivism culture like other countries in East Asia where Confucianism influence was strong (Hofstede & Bond, 1984).

However, studies show the situation has changed, indicating Japan has more individualistic culture than believed (ERIC, 1997; Kobayashi, Kerbo, & Sharp, 2010). Furthermore, the recent study about individualism and collectivism dimension reports that Japanese male students indicated more individualistic traits than American and/or Canadian counterpart (Yi, 2018).

5-3 Japanese technology adoption and individualism

Uesugi and Okada (Uesugi, 2008) reported on a study of Japanese students' adoption of electronic money. This study introduced the concept of the “Shishi Odoshi” (鹿威し deer scarer) effect, a kind of satiation model in which technology adoption initially proceeds slowly but then accelerates rapidly once a critical mass of users is reached, leading to a sudden surge in adoption. This model was further elaborated as the “Bon no ue no bi dama” (盆の上のビー玉, glass marbles on a tray) effect, as illustrated in Figure 1.

This idea was inspired by a speech given by Hon. Seiichiro Murakami, M.P., in which he explained electoral behavior. He likened members of the general public to individual glass marbles. When collected on a tray, they remain still until something happens. If the tray is tilted in a certain direction, all the marbles move together towards that direction.



Figure 1 Glass marbles on a tray
(Generated by DALL-E)

We have observed this phenomenon in various situations and often attribute it to “collectivism” in Japan. However, this is a misunderstanding. The truth is that because the Japanese public is individualistic — like those individual marbles — each person is capable of moving independently.

Japanese culture does not embrace the concept of one almighty god. Instead, individuals have their own personal beliefs and deities. This is why the concept of “Yaoyorozu no kami” (eight million gods) exists. With Japan's population exceeding 120 million today, this idea suggests that there are even more gods than previously imagined.

5-4 Failure of adopting digitization before DX

Before moving to digitalization, society must first undergo the process of digitization. However, writing documents and drawings have a long history of using analog methods – paper and pencils or brushes. The Japanese people are not yet ready to fully embrace the intangible digital world.

This individualism found in Japanese culture is also reflected in their system design and architecture. Takeshi Kimura, Editor-in-Chief of Nikkei Computer, a leading monthly magazine in Japan, has over 30 years of expertise in computer business and systems development. He has been advocating the importance of digital transformation (DX) since METI launched its program to promote DX in 2018 (Kimura, 2018).

In his recent article, Kimura describes Japanese corporations as “collections of independent workplaces where individuals act autonomously.” He observes this phenomenon at both staff and managerial levels. He further asserts that there is “neither a top-down nor bottom-up administrative structure” within Japanese Traditional Companies (JTCs). Kimura believes that achieving Digital Transformation (DX) in JTCs requires two processes:

- *Business process innovation: This involves modernizing mainframe systems and relies on a top-down approach.*

- *New business creation: This leverages DX to develop novel business models and depends on a bottom-up approach.*

Kimura concludes that JTCs, due to their structure, cannot effectively implement DX without drastic structural transformation of the corporation (Kimura, 2024). While Kimura does not explicitly address why JTCs exhibit such a fragmented structure, it is plausible that the individualistic tendencies in Japanese culture play a role. As discussed in the previous section, this individualism, often manifested in independent behaviors, may share roots with animistic beliefs like “Yaoyorozu no kami.”

6. Strategies for overcoming the challenges

There should be a good strategy to tackle the problems related to Japan's animism-centric culture, or in other words, its non-logical thinking style. Kimura proposes understanding the current situation and renewing the perspectives among members of JTCs (Japanese Trading Companies). This is an agreeable strategy. However, changing perspectives requires more than just an understanding of the present; it needs a deeper approach.

To alter the perspectives embedded in Japanese culture, it is essential to weave digital technology into the belief system of animism. In essence, this requires a cultural metamorphosis that incorporates digital components into Japan's **non-logical thinking** process. This can be likened to the process of digesting food and assimilating nutrients into the body. There have been precedents for such transformations in Japanese history. For instance, Japan underwent a significant shift during its Westernization following the Meiji Restoration after more than two and a half centuries of Tokugawa regime. The aforementioned religious transformations serve as additional examples. It is crucial to remember that such changes require time to manifest fully.

The achievement of widespread fiber-to-the-home (FTTH) access took over twenty-five

years. However, the proliferation of smartphones took only ten years. The adoption of DX may be accelerated and may require a shorter time span. Much like glass marbles on a tray, movement is required to create change. As reported by McKinsey (McKinsey Digital Japan, 2020), this change has already started, and when its effects become more pronounced, it will be a revelation.

7. Conclusions

This essay explored the reasons behind the slow adoption of DX in Japan. Anthropological interpretations of Japanese culture suggest a strong influence of animism. To facilitate wider acceptance of DX among the Japanese public and traditional Japanese companies, it is crucial for everyone to acknowledge and understand this cultural context. A potential first step forward involves incorporating DX into the concept of “Yaoyorozu no kami” (eight million gods). Constructing a shrine dedicated to DX may be the first step of this.

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References

- Ashkenazi, M. (2003). *Handbook of Japanese Mythology*.
- BIZX. (2023). *The Current State of DX Promotion in Japan: A Comparison with Overseas and Reasons for the Lag (original in Japanese, 日本のDX推進の現状とは？海外との比較や遅れている理由について)*. Retrieved from <https://bizx.chatwork.com/digital-transformation/japan/>
- Digital Agency. (2024). About Us. Retrieved from <https://www.digital.go.jp/en/about-us-en/>
- Ellwood, R. S., & Reader, I. R. (1992). Religion

- in Contemporary Japan. *Journal of Japanese Studies*, 18, 243.
- ERIC. (1997). *Culture (ED412755)*.
- GOJ. (2024). Search Results for “Digital Transformation”. Retrieved from https://www.japan.go.jp/topics/Digital_Transformation.html
- Hofstede, G., & Bond, M. H. (1984). Hofstede's Culture Dimensions: An Independent Validation Using Rokeach's Value Survey. *Journal of Cross-Cultural Psychology*, 15(4), 417-433. doi:10.1177/0022002184015004003
- Kimura, T. (2018). Digital organizations remaining as ‘experimental departments’ Japan’s corporate DX era begins in 2018 (original in Japanese, 「実験係」に留まるデジタル組織 18 年を日本企業の DX 元年に. *Nikkei Computer*, 2018.1.4, 71.
- Kimura, T. (2024). Because it is not top-down, DX is impossible. Well, Japanese companies are not exactly bottom-up either, right? (original in Japanese, トップダウンのではないからDXは無理、いや日本企業はボトムアップでもないてしょ). *Nikkei XTECH*. Retrieved from <https://xtech.nikkei.com/atcl/nxt/column/18/00148/032100325/>
- Kitagawa, J. M. (1990). *Religion in Japanese History*: Columbia University Press.
- Kobayashi, E., Kerbo, H., & Sharp, S. (2010). Differences in Individualistic and Collectivistic Tendencies Among College Students in Japan and the United States. *Social Sciences*, 51. doi:10.1177/0020715209343424
- Makishima K., Minister for Digital. (2021). *Japan’s Digital Policy*. Tokyo: Digital Agency Retrieved from https://www.digital.go.jp/assets/contents/node/basic_page/field_ref_resources/0f321c23-517f-439e-9076-5804f0a24b59/20211227_en_japans_digital_policy_01.pdf
- McKinsey Digital Japan. (2020). *Using digital transformation to thrive in Japan’s new*

normal: An urgent imperative. Retrieved from https://www.mckinsey.com/~media/McKinsey/Locations/Asia/Japan/Our%20Work/Digital/Using%20digital%20transformation%20to%20thrive%20in%20Japans%20new%20normal_an%20urgent%20imperative_upd201223.pdf

METI. (2024a). Announcement of the selection of 25 companies for “DX Stocks 2024” (including 3 DX Grand Prix companies), 21 “DX Noteworthy Companies”, and 2 “DX Platinum Companies 2024-2026”. (original in Japanese) [Press release]. Retrieved from <https://www.meti.go.jp/press/2024/05/20240527001/20240527001.html>

METI. (2024b). Digital Transformation Stocks (original in Japanese, デジタルトランスフォーメーション銘柄[DX 銘柄]). Retrieved from https://www.meti.go.jp/policy/it_policy/investment/keiei_meigara/dx_meigara.htm

PwC Japan. (2023). *Survey on the State of DX Promotion in Japanese Companies 2023: Challenges Toward Comprehensive DX for Creating the Future* (original in Japanese 日本企業のDX推進実態調査 2023). Retrieved from Tokyo: <https://www.pwc.com/jp/ja/knowledge/thought-leadership/2023/assets/pdf/dx-survey2023.pdf>

Tylor, E. B. (1889). *Primitive culture: Researches into the development of mythology, philosophy, religion, language, art and custom, Vol. 1, 3rd American from 2nd English ed.* NY, US: Henry Holt and Company.

Uesugi, S. (2008). *Privacy on the edge in the era of e-Money*. Paper presented at the Proc. of The ITS Europe Regional Conference 2008 (Sep. 18-20, Rome).

Vesey, A. (2010). Death and Social Order in Tokugawa Japan: Buddhism, Anti-Christianity, and the Danka System (review). *Harvard Journal of Asiatic Studies*, 70, 277 - 282.

Yi, J.-S. (2018). Revisiting Individualism-Collectivism A Cross-Cultural Comparison among College Students in Four Countries.

Journal of Intercultural Communication, 18(2), 1-13. doi:10.36923/jicc.v18i2.759

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