

Book Review: Imitations to Innovations

Theron E. Fairchild

This article reviews *Nations from Imitations to Innovations: The History of Innovation and Technology Development in Korea and Japan*, by Mohammed Ahmad S. Al-Shamsi (2022). As a teacher of Japanese business history, I was looking for a book that presented a general overview of Japan's technological history. Al-Shamsi approaches the topic from the perspective of an engineer interested in technology. He also comprehends the contemporary view that all technology and innovations in general emerge from existing technologies and innovations.

Asian nations, including Japan, Korea, and China, are sometimes accused of merely copying Western innovations and then imitating them for market consumption. However, this prejudice is rooted in a longstanding Western bias, in which creativity is considered a kind of magic or divine inspiration that emerges from heaven or some other place of purity or genius. Specifically, *creatio ex nihilo*, "creation from nothing," became the Christian dogma of Europe's Middle Ages, in which only God creates, a bias that still permeates popular ethics and notions of creativity in the West (Hubler, 1995). Within this bias, people are either creative or not creative. Innovations are either entirely original (pure) or they are not truly innovative.

However, Eastern approaches to creativity, as evidenced throughout the history of China, have tended to interpret creativity as a practical affair to deal with existing real-world problems (Niu, 2019). People are not creative per se but innovative or creative in their particular domains of expertise. And their innovations typically emerge by first copying and imitating existing technologies and inventions. The recent international scholarship on creativity (Baer, 2016) has finally come around to this Eastern interpretation (and somewhat Ancient Greek interpretation), that most creativity is imitation that evolves into innovation.

In *Imitations to Innovations*, author Al-Shamsi follows this line of reasoning with an underlying thesis that essentially states: Japan has invented nothing, Japan has developed everything. This perspective should not be considered criticism but rather as a reflection of how Japan has been successful throughout different eras of its history. Cultures produce very few significant inventions from scratch, so Japan is not unusual in this regard. Western nations, institutions, and individuals also invent and innovate by first imitating someone or something else, and these innovations are mostly produced by organizations and individuals

within a particular domain of expertise. Experienced bridge builders innovate bridge designs, not the vehicles that travel over those bridges. Game software designers design video games, not the screens on which those games are played. This is not a criticism of an individual person or culture's creativity but a reflection of how things are actually created.

With that said, most nations rarely develop or refine existing technologies to the extent that Japan has throughout its history, which is the point of Al-Shamsi's argument. Many organizations and individuals might be able to copy or imitate technologies, but few have further developed or innovated on those technologies. This is the key to understanding Japan's success, particularly in the modern era.

Problems with the Book

Despite agreeing with Al-Shamsi's underlying thesis, I found that *Nations from Imitations to Innovations* suffers from several flaws. The author is an engineer with an interest in the history of technology. Yet, his selection and interpretation of historical evidence falls short in supporting his thesis. Like all cultures, Japan has a specific archaeological and historical record. Unfortunately, Al-Shamsi makes little use of the details in this record, to the extent that he makes some fundamental errors in information. In fact, the book seems as if it never passed review by a scholar of Japan. I was able to read past the errors because I am trained in Japanese history. But the general reader, for whom the book is intended, will likely be left with an incomplete if not inaccurate understanding of Japan's history.

Early Innovations

Chapter One of Al-Shamsi's book attempts to address key technological developments in Japan from the beginning of the Yayoi period (弥生時代 ca. 300 B.C.E.) through the seventh century C.E. and the time of the Taika Reforms (大化の改新) of 645. During this 1,000-year period, Japan imported techniques and tools related to agriculture, weaving, and defense, which included rice cultivation and metal tools. These technologies arrived from China and Korea. As China was the center of East Asia, technological dissemination from China to its neighbors was common, and some innovations and improvements based on these Chinese technologies occurred in places like Korea and Japan.

Unfortunately, this is where Al-Shamsi ended his analysis, using just seven pages and avoiding any depth into the how or why regarding these 1,000 years of Japanese history. The point of his first chapter was to raise awareness that Japan began a natural pattern of copying and imitating technology early in its history, before subsequently innovating from this technology. Al-Shamsi's intention was to dispel the common belief that Japan only became a technological nation in the nineteenth century, during the Meiji Era (明治時代), when it began extensively copying technology from the West. However, the author fails to develop this point with any details from the archaeological and historical records of early

Japan, including its long and rich agricultural history. In trying to make a simple case for the layman reader, he neglects the evidence that would have validated his point.

To help understand early Japanese innovation, details about the well-known case of rice is just one example that would have been illustrative in Al-Shamsi's first chapter. Rice cultivation in Japan continued to be developed and refined well beyond the seventh century, into the Edo Period (江戸時代 ca. 1600-1868), the Meiji Period, and throughout the twentieth century. Although early scholarship established that rice cultivation entered Japan from China no later than 400 B.C.E., recent archaeological findings (Normile, 2003) showed that rice cultivation arrived earlier, around 900-800 B.C.E. Most rice harvesting continued somewhat unchanged in Japan until the Chinese-based Ritsuryo (律令) system of government took hold in Japan in the seventh and eighth centuries C.E., which created tax codes based on rice, leading to new techniques and purposes for rice. This pattern has continued all the way through the modern era, over which time rice has been produced as a direct food, as a base for other food products, as a material for products like clothing, as a product grown specifically for religious purposes, and as tax revenue up until the start of the Meiji period (Plenus, 2024).

These cultural and legal practices over the past 1,400 years led to innovations in rice production, which included selective breeding and several new varietals. All of this occurred in a natural environment that is not necessarily conducive to rice cultivation. Other than having an abundance of water, Japan is mostly a rugged landscape where many of its natural flood plains were once marshlands. Unlike China and its vast fertile river regions, Japan's land had to be intensively reshaped over centuries to allow for a highly productive rice economy. In short, a combination of several variables over time, including hard work, gave rise to the specific case of Japanese rice innovation.

Early Modern Innovations

Other than a brief look at bladesmithing (i.e., making knives, swords, etc.), which arrived mostly from Korea and was revolutionized in Japan through *tamahagane* (玉鋼), Al-Shamsi's book skips past most of Japan's Middle Ages. This is unfortunate because tamahagane (traditional Japanese steel) was perhaps the most advanced form of steel making in the world at the time (see Yaso, et al., 2009, for a metallurgical study), and it played a philosophical role in the eventual evolution of modern Japanese steel production.

To his credit, the author did devote some energy to the arrival of European firearms during the Warring States Period (戦国時代), Japan's civil war of the sixteenth century. In this period, Japanese feudal lords (*daimyo* 大名) bought many firearms, mostly a type of matchlock arquebus, from traders of the Portuguese Empire. However, the *daimyo* desire to control their own supplies of firearms created incentives to imitate these weapons and modify them for the specifics of Japanese field combat. The first result was the *tanegashima* (種子島). These weapons were initially inferior to the European originals, but their adaptation served Japanese armies well. Throughout the sixteenth century, bladesmiths

who had become gunsmiths were paid handsomely to improve the effectiveness and firepower of these matchlock weapons, particularly in improving their slow rate of fire and solving the common problem in Japan of being able to fire in the rain, which was a significant shortcoming of the original Portuguese weapon (Perrin, 1979). The most notable early customer of these Japanese weapons was Oda Nobunaga (織田信長, 1534-1582), leader of the Oda clan, whose firearm tactics set the stage for expanded firearms usage and the eventual ascendancy of the Tokugawa Shogunate (*Edo bakufu* 江戸幕府) of the seventeenth century.

Despite Al-Shamsi's effort in addressing this history of Japanese firearms, he did so in minimal detail. A more developed history of firearms would have better demonstrated that local Japanese manufacturers could reproduce and ultimately modify a foreign invention for themselves. This is important because cultures can import foreign technologies such as weapons, which they have throughout history. However, there is no guarantee that these cultures are able or willing to imitate or innovate from this imported technology, to create a new and effective product as the Japanese of the sixteenth century did. A richer assessment of this period in Japanese history, including the changes in military tactics and unit organizations, provides much stronger evidence that imitation and innovation in Japan has a longer and more developed history than commonly depicted.

Modern Innovations

Despite Al-Shamsi's attempt to show the process of imitation into innovation in Japan, the author ends up where many interpretations of Japanese technology end up, with the Meiji period as the beginning of modern technology, followed by post-1945 Japan as the real technological innovator. There is some detailed discussion about the evolution of the modern shipbuilding industry and its rise to prominence in the twentieth century. However, the discussion about automobiles and motorcycles fails to deliver much substance, and the mere one paragraph about the history of Sony is an example of missing key developments in the Japanese electronics revolution after 1960. There is some good discussion of the video game industry, but overall, numerous other sources present more details about this industry and other modern technology industries in Japan. The book also presents two brief chapters on the emergence of technology in twentieth century Korea. Yet these, too, are limited, revealing little about Korea's technological history and, as such, are not addressed in this review.

Conclusion

Overall, Al-Shamsi intended his book as a basic introduction to the history of technology and innovation in Japan and, to a lesser extent, Korea. However, even this simple goal is unachieved. The material is simply too generic and minimal. More problematic, the book includes errors and omissions that make it somewhat unreliable. The book's references

showed that the author consulted a variety of sources, but his lack of expertise in Japan studies resulted in analyses that were uncoordinated.

Despite the book's problems, I appreciate Al-Shamsi for attempting this type of work for the layman reader. Many non-Japanese and Japanese alike struggle with the facts and realities of Japan's history, which tends to reach most people through popular culture, myth, and the continuing problem today in most societies of misguided nationalism and propaganda. In my own experience as an educator in history, it often seems as if information in English about Japan is decreasing. The slowing of the Japanese economy and the rise of China has invariably reduced international interest in Japan. However, Japanese history deserves a place in global classrooms, taught alongside the well-known histories of other G7 nations like Great Britain, France, and the USA. Books like Al-Shamsi's are an attempt in that direction.

References

- Baer, J. (2016). *Domain specificity of creativity*. Elsevier.
- Hubler, J. N. (1995). *Creatio ex nihilo: Matter, creation, and the body in classical and Christian philosophy through Aquinas*. University of Pennsylvania.
- Niu, W. (2019). Eastern-Western views of creativity. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge handbook of creativity* (2nd Ed., Chapter 21). Cambridge University Press.
- Normile, D. (2003). Earlier start for Japanese rice cultivation. *Science*.
Retrieved from www.science.org
- Perrin, N. (1979). *Giving up the gun: Japan's reversion to the Sword*. D. R. Godine.
- Plenus Academy (Plenus 米食文化研究所). (2024). The rice that created Japan.
Retrieved from www.plenus.co.jp
- Yaso, M., Takaiwa, T., Minagi, Y., Kubota, K., Morito, S., Ohba, T., and Das, A. K. (2009). Study of microstructures on cross section of Japanese sword. *EDP Sciences*.
DOI:10.1051/esomat/200907018