

Open Innovation in Japan



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Japanese firms and universities are increasingly adopting the concept of open innovation in their processes. This shift is both the result of a continuing slowdown in the Japanese economy and the difficulties it is experiencing in further improving productivity. The traditional method of innovation in major/large Japanese firms has been to establish a network of innovation with some of its core business partners, coordinated at a central research institute within the organization. This formed a closed system for innovation, with these central research institutes conducting applied research to drive innovation in products or processes. All major products and processes were developed in this manner. This model of innovation produced successful results up to the 1990s. But with the advent of new technologies and business environments coming into the 2000s, Japan's closed system of innovation ran into certain limitations. Advances in the IT industry enabled faster development of products and shortened product cycles, making it impossible to spend large amounts of time and money on product development. Competitors at emerging economies began to close in on Japan, whose conglomerate companies were beginning

to lose their international competitiveness in traditional industries and found themselves forced to explore new systems to drive innovation.

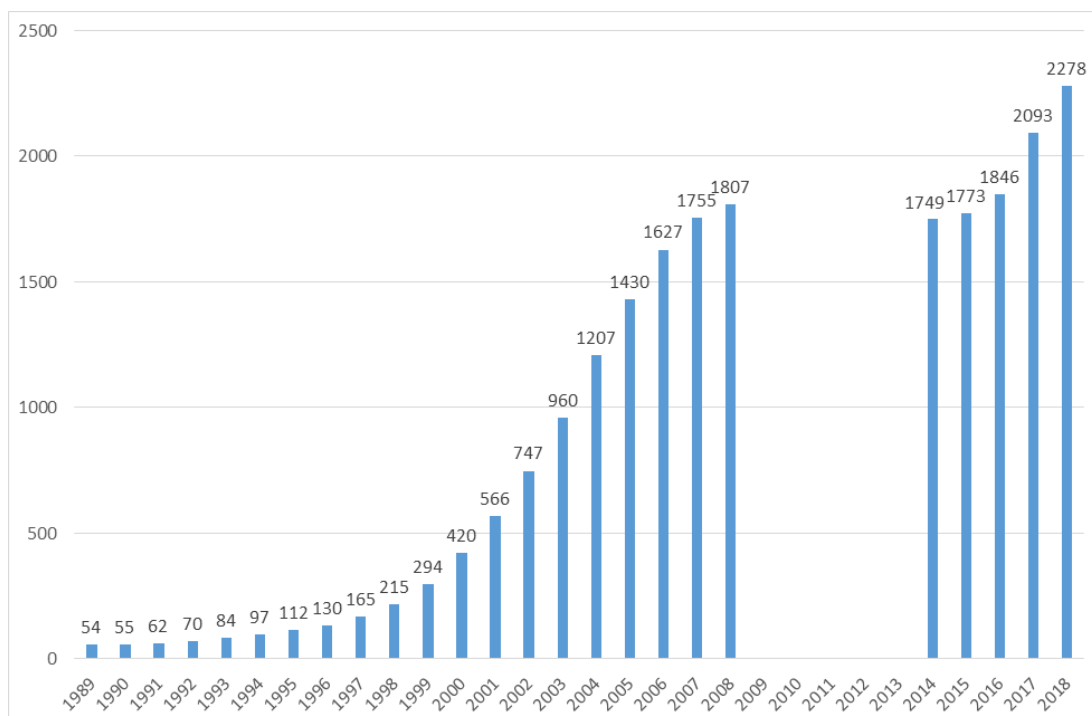
The concept of “open innovation” was first proposed by Harvard Business School professor Henry W. Chesbrough. Beginning from the 1980s, U.S. firms were already experiencing the plight Japan now found itself in, and an open form of innovation had been proposed as a solution. While the concept went public in 2003, Japanese firms did not show much interest at the time. After all, much confidence remained in the traditional innovation systems already in place. However, coming into the 2010s businesses began to regard open innovation with much more interest. They were joined by national universities within Japan as well, prompting a wide demand for reform in these universities. The call came for state-run universities to return the fruits of their research to society, thus creating the need for industry-academic cooperation. Businesses became able to utilize the findings they gained from research conducted at these universities to drive innovation, while the universities benefited from research grants provided by the businesses. Meanwhile, the Japanese government chose to concentrate on reform measures to promote this form of cooperation between academia and businesses.

University reform is mostly taking place at national universities. The primary issue is that joint research between universities and businesses has been limited to small-scale projects conducted between individual researchers. To overcome this problem, it became necessary to overhaul the conditions at universities to allow more comprehensive agreements with businesses. The administrative functions of universities were strengthened to allow effective and comprehensive agreements with businesses. As a result, industry-academic cooperation centers or open innovation offices began to appear at Japan’s national universities, serving as the focal point for joint research and personal exchanges with industrial partners, also greatly contributing to private sector funding for these universities. Private sector investment in universities remained in the range of 20 billion yen in 2003 but ballooned to over 100 billion yen in 2018. The most visible increase was seen in the area of joint research projects, climbing from 15 billion to 68 billion yen, or more than four-fold, during this period. The number of large-scale joint research projects worth 10 million yen or more rose as well, more than doubling from 507 in 2012 to 1,234 in 2018. Another trend is that master contracts for more comprehensive services between universities and businesses are increasing, reaching a total of 481 cases in 2018. The University of Tokyo, for instance, entered into master contracts with industry partners such as Hitachi or Daikin Industries, agreeing to conduct joint research projects on a wide range of subjects, in exchange for which these firms have pledged funding of 10 billion yen over the next 10 years to the university.

Another important change at Japan's national universities is how they are increasingly serving as centers for innovation, with more and more venture companies being born on campus. The initial venture boom at Japanese universities rose in the mid-2000s, after which another has been in the development since 2013. The University of Tokyo has emerged as a clear leader in this area, producing one out of all ten venture startups in the country by itself. This trend is the result of institutional changes allowing universities to fund venture companies on their own, as well as measures to increase the amount of funding they can provide. Universities have expanded incubation facilities and improved the environment for startups to be created on campus. All of these efforts are leading to a sharp increase in new venture startups. The University of Tokyo Edge Capital, or UTEC, is a seed/early stage technology focused venture capital firm founded in 2004 by the university, while the University of Tokyo Innovation Platform Company (UTIPC) is a 100% subsidiary of the university founded to operate its venture capital fund. The university has also been aggressively recruiting skilled personnel to support its joint research projects.

Figure 1. Venture Companies Born on University Campus

(Unit: Number of Firms)



Source: Ministry of Economy, Trade and Industry. "Industrial Technology Survey Project for the 30 Years of the Heisei Era (Venture Companies Founded at Universities)" February 2019 [in Japanese].

It still remains to be seen how successful Japan's efforts to establish an open innovation system will be. The system has basically been taken from the United States, and will likely have to be adapted to businesses and universities in Japan. We are also seeing the appearance of open & closed systems, a hybrid form of these open systems and the more traditional model of closed innovation in Japan. As of yet, not many cases have been observed of Japanese conglomerates successfully realizing open innovation with SMEs, venture company or university partners. This points to the great difficulty involved in solidifying a relationship of trust and cooperation between all the actors of innovation. Still, Japanese businesses and universities are making the best efforts they can to adapt to the new technological challenges we are seeing today. As for Korea, we must ask ourselves what efforts our businesses and universities are making. Could we still be clinging to our own traditional systems for innovation and research education? Seeking out a new innovation system is no longer a matter of choice but rather an essential requirement for firms and universities to survive. **KIEP**