

# Stimulating **Innovation** to Break Japan's Deadlock

While the winning of the 2014 Nobel Prize in Physics by three Japanese physicists for their invention of the blue LED sounded a brief note of optimism, innovation is at a standstill in contemporary Japan, and the nation's economy has also failed to effectively overcome its stagnation since its two lost decades. What type of innovation do we need to stimulate in order to guide Japan onto a stable growth trajectory?

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# What must We Do to Create an Innovative Japan?

What type of innovation is necessary for Japan to break away from its long-term state of stagnation and reach a steady growth trajectory?

What measures can realize this type of innovation?

In this issue of *MyVision*, we discuss these questions with an academic with a deep involvement in science policy, a world authority on research in the field of artificial intelligence, and executives of companies which have won high praise for their innovative business development in the areas of IT, logistics, and medical care.

Interviewer: Naoko Mori, NIRA Research Coordinator Editor: Kazuyoshi Harada

Period of interview: October – December 2014

## Cultivating human resources is a shortcut to innovation

Takeo Kanade

U. A. and Helen Whittaker University Professor,  
Carnegie Mellon University

Innovation means finding and solving problems the solution of which will generate value. The most important aspect of this value is economic impact, and this is linked to enabling Japan to overcome its economic stagnation.

Initiatives like Google and Facebook were groundbreaking ideas. The standard thinking is that the user who receives the service pays for that service. These initiatives, however, enable the user to establish an account free of charge, and it is the service provider who pays the network managers. Their creators saw that mechanisms in which the consumer, the person who receives the greatest benefit, does not pay for the service would actually have an enormous economic impact (i.e., yield tremendous profits). This is an example of finding and solving a problem whose solution will generate value.

The qualities that are essential to this type of innovation are the power of observation to perceive what is necessary to improve society and quality of life, the insight to set its concrete agenda and the intellect and energy to bring about its realization. Japan faces a large number of challenges, including an aging population, natural disasters, and educational issues. Unless we have people to find the problems, and solve them, there will be no innovation.

There is no miracle or shortcut that will magically produce innovation. The most important factors are human resources and education. We must foster the habit of active problem-solving from the years of childhood. Offer children the experience of

discovering and solving for themselves problems that will generate value, and feel the joy of doing so. Encourage university students to offer concrete solutions to the problems of local businesses in their regions. This will take 20 years, and it sees a circuitous path, but it is the shortest route to innovation. After 20 years, the generation leading Japan will have changed. It will be essential for us to foster human resources with strong commitment and conviction to lead the nation then. ■

Professor Kanade is an authority on robotic engineering and image recognition. He conducts original research in Japan and the U.S. As the director of a research institute at a U.S. university, Professor Kanade brings an international perspective to Japan's science and technology policy.

## Create a flat social structure

Yasufumi Kanemaru

Chairman and CEO, Future Architect, Inc.  
Representative Executive Officer &  
Executive Vice President, NIRA

Innovation is born either from a sense of crisis or from freedom. The reason that it is difficult to spark innovation in Japan is that the majority of Japanese company organizations are oriented towards affirming the past and extending past traditions. This dampens the spirit of innovation and impedes risk-taking.

Innovation in the IT industry occurs through the combination of small ideas. For example, Amazon incorporated innovations occurring in the computer industry into its own business model, combining book sales, the Internet, and distribution. This is an example of a small inspiration leading to the dynamic transformation of a business model.

Innovation should spring from young people, but in Japan most talented young people join large companies. When they enter these companies, they are treated as inexperienced members of staff, but during the period that they gain experience, their ideas progressively become stale. In order to change this social mechanism, it will be necessary to abandon our focus on results, and create a flat social structure in which young entrepreneurs are able to deal with major companies.

Hewlett Packard's first major user was the Walt Disney Studio. When Bill Gates was just starting out, he was already engaging in dealings with IBM. We should create the conditions for the people who actually do the work in the contracted companies at the bottom of the corporate hierarchy to engage on an equal basis with companies at the top of the hierarchy. The side that provides the technology and the side that provides the funds should be equal. The value system that privileges the contractor because that is the side that pays is not universally shared. It should be the case that the people who take the risks and do the job are fairly evaluated and receive appropriate remuneration. ■

Mr. Kanemaru established Future System Consulting (now Future Architects), an IT consulting firm specializing in the realization of strategies, in 1989. Making its mission the maximization of its clients' future value, the company is unique in the IT industry.

## Setting our sights on social innovation through ICT

Hideko Kunii

Professor, Graduate School of Engineering Management (MOT),  
Shibaura Institute of Technology

Innovation is not simply technological revolution, but also the creation of new value with social meaning through the realization of new connections between various things. Google and Amazon, which have displayed such dramatic growth, were powered by this type of innovation. If we consider the transformations that have occurred in the world over the past 20 years, the questions that have been asked are how can we introduce and utilize ICT to generate new value, and how can we quickly employ user feedback to promote the next revolution?

Japan has not kept pace with this trend. What is lacking at the root is a sense of crisis. Following the publication of the Palmisano Report in 2004, the U.S. government reconsidered where the nation's international competitiveness lay, and there was a movement throughout the country towards the achievement of increased innovativeness through the use of ICT. In Germany, an initiative termed "Innovation 4.0", which seeks to implement an advanced technological strategy that fuses manufacturing and ICT, has been commenced.

For Japan, the fostering of human resources who understand both business and technology is a matter of urgency. Among Japan's managerial class, there are few individuals who have a strong sense of personal involvement in the use of ICT, seeing it as an issue that relates directly to their own business, and who are able based on this perspective to create new business models. There are also problems in Japanese university education. Japan does not have curricula like those in the U.S., which enable core subjects in information science and information engineering and the practical application of the technology to be taken in parallel, and as a consequence does not adequately produce engineers able to put ideas into practice. Student numbers are also lower by an

order of magnitude.

The workplace environment is also important. Major innovations and new initiatives are born from nodal points at which diverse ideas fuse together. Corporate cultures and workplaces should be transformed at the initiative of top management to encourage eccentric opinions and ideas to be bounced off each other. ■

Based on her experiences in the IT industry, Professor Kunii focuses her energies on university education that takes innovation and globalization into consideration. She has contributed to policy in the fields of innovation and support for business creation.

## Turning the tables on adversity in Japan

Makoto Kigawa

Representative Director, President and  
Executive Officer the Company, Yamato Holdings Co., Ltd.

Ideas that will help Japan turn the tables on its contracting economy will generate innovation. How can we contribute to the invigoration of regional areas facing depopulation and the aging of their remaining population? What can we do to embrace the era of borderless logistics and recover Japan's international competitiveness? A revolution in logistics could power the solutions to these problems and generate a variety of innovations both in Japan and overseas.

Yamato Group's home delivery network, known as "TA-Q-BIN", has taken root throughout the nation as a community-based service, and is already part of the nation's social infrastructure. If we eschew the focus on maintaining a closed company network, this network could be turned into an open platform and be thrown open to regional administrations and regional businesses, including businesses in the same industry. This would produce the possibility of generating new business fields from the ingrained problems of individual regions. For example, ports in Japan's regional areas are lacking in packaging and unpackaging, customs clearance, and international procurement and delivery functions. The provision of services that would supplement these functions would make it possible to realize efficient logistics using these ports. The generation of new demand, for example by using Yamato Group's international controlled temperature shipment and delivery service, known as "International Cool TA-Q-BIN" to directly ship high-quality fresh produce from Japan's regions to overseas markets would create a significant business flow that would encompass both the public and private sectors.

It is also not wishful thinking, as internal demand in Asia expands, to consider exporting high-quality Japanese-style services to the region, which would then become the Asian de facto standard. The quality of Yamato Group's delivery services has evolved through meeting the expectations of its Japanese customers. We seek to make this level of quality the Asian standard, and we believe that the citizens of the region support us in the achievement of this goal. If we are successful, then we could help not only service businesses but also manufacturing businesses to enter the Asian market. ■

Mr. Kigawa works to realize new innovations that will contribute to Japan's economic growth as the head of Yamato Holdings, a company that has implemented innovations of great significance to the logistics industry.

# Generating “Service Innovation” towards the creation of new value

Toshio Yamamura

Operating Officer of Consumer Service Business Unit,  
Mitsui & Co., Ltd.

In Japan, the cultural climate does not encourage value to be found in services. However, the idea that evolution in services will generate new value is an important one. Japan’s population is aging rapidly, and unless we change the nation’s social mechanisms looking towards 2025, when the baby boom generation will turn 75, Japan’s finances will collapse. “Service Innovation” is certain to result from efforts to avoid this.

A mechanism is currently coming into being by means of which new medical devices and drugs are developed and used to provide community-level support for elderly citizens in regional areas. If we could export a system for the provision of medical care and nursing services in an aging society overseas as “the Japanese model,” we would not only make an international contribution, but would also invigorate the Japanese economy.

Healthcare is by nature a community-based service, but elements such as prevention, treatment, and responses to prognoses are basically the same in every country. Because of this, this field is a highly universal and global one. There is demand from people within the Asian region for advanced healthcare services that are not available in their own countries, and the trend

towards medical tourism in and migration to Singapore, India, and Thailand is accelerating.

Japan’s healthcare system has been closed to the world up to the present, but the nation possesses unique advanced technologies. In the future, if we are able to link up with the healthcare networks in each of the countries of the Asian region and create mechanisms enabling bidirectional movement of patients and healthcare workers between developed and less developed nations, we will produce new healthcare networks and generate enormous innovation in healthcare in Asia.

Japan’s medical care industry and its peripheral industries possess an international advantage, and if we can lower the regulatory barriers, there is a strong possibility that these industries could be Japan’s next world-leaders, after cars and home appliances. Experimenting with the entry of businesses from other industries into the healthcare market can be seen as an example of “Industrial Innovation.” Mitsui as a general trading company could serve a connecting function in this field. ■

Mr. Yamamura has worked for many years in the areas of service and healthcare business, which are being targeted by Mitsui and Co., Ltd. as growth areas towards the creation of new value and the realization of increased competitiveness.

This is a translation of a paper originally published in Japanese. NIRA bears full responsibility for the translation presented here.

## About this Issue

### Stimulating Innovation to Break Japan’s Deadlock

The Internet is said to be driving “Industry 4.0,” the fourth industrial revolution, and the socioeconomic change in focus from manufacturing to IT is producing significant change in Japan’s industrial structure.

Since the collapse of the bubble economy, Japan has seen a long-term shift in management towards a focus on cost-cutting. During this period business operations have been streamlined, but at the same time we are not opening up new horizons. Will Japan’s manufacturing industry become a mere parts maker for U.S. IT companies that specialize in the creation of platforms? And is there any prospect of Japan coming out on top in the intense competition in the field of artificial intelligence? Ultimately, will Japan’s strengths, typified by the sharing of implicit knowledge and the coordination of initiatives into a balanced whole, remain strengths amid the new industrial trends?

The determination of measures to respond to these issues is an urgent matter. The difference between this and Japan’s past efforts at modernization is the fact that it is no longer possible to simply attempt to catch up. It will be essential for us to build systems that produce value appropriate for the 21<sup>st</sup> century. This means breaking through the shell of the systems that supported Japan’s high economic growth.

The experts interviewed for this issue of *My Vision* discussed what they consider to be the keys to Japan’s transition to becoming an innovative economy. The realization of the initiatives that they suggest will not be easy, but there is no question that this represents an issue that should be addressed as a priority by the current administration.

Reiko Kanda, NIRA Executive Vice President

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