

Interview No.21

In Preparation for Scientific and Technical Regrowth in Japan - Recommendation with a View to Industry, Academia, Knowledge, and Intellectual Property – (I)

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In Japan, which once upheld a goal of being a technology-oriented nation, electric appliance and semiconductor makers have announced significant losses. Which is far from their intended accomplishment. So how about Japan's scientific and technological capabilities? From the viewpoints of the industrial circle, university, and intellectual properties, three men familiar with respective business circumstances discussed problems with the current state of scientific and technological capabilities, as well as future regrowth.

Attendees:

Mr. Takashi Sawai, President, Foundation of Institute for Intellectual Property Strategy (Vice President, Miyoshi & Miyoshi);

Mr. Hideo Hosono, Professor, Tokyo Institute of Technology;

Mr. Toshikatsu Miki, President, National Center for Industrial Property Information and Training

Chair:

Hiroshi Asakura, TechnoAssociates, Inc., Chief Editor, Intellectual Property Awareness, Nikkei Business Publications, Inc.

China Growing Strong Integrally with the U. S.

Chair: First, let's talk about how we view the present status. When we look at the number of patent applications country-by-country, Japan was surpassed by China in 2010, and the number of patent applications filed in Japan is on a rapid decrease. Also, concerning the number of theses in the field of science and technology, Japan is losing its sense of presence. What do you think about this?

Mr. Sawai: If either one was still growing, it would not look so pessimistic, but both the numbers of patent applications and theses are declining, so it is a considerably difficult situation.

Mr. Hosono: This means that Japanese scientific and technological capabilities are on a

relative decline. It is an obvious fact, and I feel that a lot when working on site. As to whether universities are becoming stronger at basic studies while companies are doing less and less, there are only a few researchers who are assumed with those studies, despite reasonable budgets.

Chair: Does it mean that human resources are decreasing?

Mr. Hosono: It is because science and technology are fields which are now less attractive to students than before. There is no denying the lowering number of students and their diminished achievements or interest. In their younger years, they are no longer interested in the fields of electricity or machinery. So, as to whether Japan is strong globally in the field of biotechnology, it is not so. Regarding the field of information technology, Japan is no match for India. In the field of materials, it can be said that Japan is still strong due to its past achievements, but recently China is growing rapidly. Basically, the field of materials depends on head-count. If Japanese were many times more capable than other people, then that would be another story, but it is not the case.

Mr. Sawai: That means China is resourceful after all, doesn't it?

Mr. Hosono: It is the existence of the U. S. that must not be overlooked in understanding the strength of China. This is because China and the U. S. are acting as a unit at a study field level, though not intentionally. The American academia associated with industry consists mostly of people of Chinese origin. Seeing their network, I fear that Japan cannot surpass them by any possibility. For instance, in the measurement of a neutron in a superconductive iron substance discovered in our institute, I was thinking we could not be defeated by China, as they had no large-scale facility to be able to emit a neutron beam. However, the Chinese network for a neutron facility in the U. S. and material researchers in mainland China worked together to solve this problem easily. I stayed in the U. S. from 1988 to 1989, but in about 10 years since then, the Americans have become "minorities" in the scientific and technological fields, while people of Chinese origin have become university professors in the U. S. It is not uncommon for quite a few people to hold statuses both in the U. S. and China, even when going back to Chinese universities.

Required "Risk Tolerance"

Mr Miki: Recently, there is a tendency for Japanese companies to become indigenized in Asian countries. I think this is important. Compared with the U. S. and European companies, Japanese companies are surprisingly noticeable. In the course of indigenizing, it

is important to recruit good human resources associated with study and development, to train them in Japan and utilize their talents on site. If there are fewer and fewer Japanese who are attracted to the fields of science and technology, it becomes important to consider how to handle foreign people who are attracted to those fields. We should seek what environment we should prepare to attract foreign people, and positively address development of a favorable environment, including a method of cultivation.

Mr. Sawai: When teaching at Intellectual Property Professional Graduate School, I feel young people are also wondering what to do. Through experiences of entry examinations up to universities, they seem to be obsessed with an idea that there is only one measure of value, which is according to their ranking in the examination system. Isn't it necessary to let them know through experience that life becomes more fun by pursuing their own interests, hobbies, etc.?

Mr. Miki: Basically, young people are inspired by the successful experiences of their parents' generation without questioning, aren't they? Young people must be able to think about self-realization from various points of view, but it seems they are bound by the fixed concept of their parents' generation. To break down such a concept, cross-border activities may be important such as to experience a different concept of values, as a shortcut approach, to go abroad, I guess.

Mr. Hosono: It seems young people only see things from the outside. Japanese companies have grown up undergoing hard times from the beginning. Not knowing such a background, young people have started to work in a state where neat head office buildings were already constructed. In my childhood, trade deficit prevailed, and there were buy-domestic-goods movements and foreign currency restrictions. This was about fifty to sixty years ago, and now it is forgotten that such a time ever existed. Nowadays, it is natural to stay in the black. In a sense, it seems to me that growing up in favorable circumstances, their motivation to do something has become less and less.

Mr. Miki: I am not so pessimistic about young people's possibilities. They are struggling hard with the current employment situation, and cannot help considering what will be their own self-realization. However, even young people who have entrepreneurship are increasing little by little. What I feel is risky about the recent young generation is just that they are trying to go by the go by the book. Innovation originally means "challenge to common sense by a lack in common sense", doesn't it? With an attitude of going by the book, there will be

no room for challenging ideas to enter. I think that introducing challenging ideas different from conventional ones will yield greater results, and customers' acceptance of them will lead to innovation. Some young people are trying to act by linking such ideas with their way of life, and I would like to have hope in them.

Chair: There is not so much of a climate for challenging spirit seen in many Japanese companies.

Mr. Sawai: Basically, employees in Japanese companies, especially in large ones, have long been accustomed to a controlled environment, and have tendencies not to take risks. I think it should be natural to convince their manager of an opinion or an idea, and to drive their idea if they believe it is good. However, they tend more than ever to hold back, saying only "I see," if their manager says something adverse.

Mr. Hosono: I am afraid that evaluation according to a demerit system* is to blame.

Mr. Miki: Even in big organizations of companies or universities, whether or not people equivalent to leaders have a "risk tolerance" instead of a "risk-taking attitude" is important, I think.

Mr. Sawai: I suppose you mean by "risk tolerance" that, if junior staff suggest what they want to do, their leaders can give them full authority with the matter and take the consequences for them, as there is no end when you begin to question whether their suggestion was alright or not.

Mr. Miki: It is important to get hold of specific customers while having a "risk tolerance", attitude isn't it? People often ask, "How big is your market size?" However, what is important is not to begin with such a concept as the market, but to name five specific prospective customers back-to-back, and whether you have already retained those customers. One who has large "risk tolerance," without taking any action for reducing risks, would merely be foolish. Market research data are not able to assure success in business.

Mr. Sawai: The "iPod" and "iPad" were developed by Apple Inc. in the U. S. where the market did not exist. The products they made with confidence have been accepted by consumers all over the world, resulting in the appearance of a new market in its concrete form.

The Academic-Industrial Alliance - Not Defeated at the Entrance

Chair: How is the academic-industrial alliance going in Japan?

Mr. Hosono: In my view, Japan is never in bad circumstances. Entrepreneurs often visit universities in Japan, having individually built various relationships between themselves.

Mr. Sawai: Perhaps, it depends considerably on universities and professors. Surely, where there is a prominent professor, money and human resources gather? Seeing the authorities' policy on the academic-industrial alliance, I feel they have a logic for allocating money, while there still remains many insufficiencies in their views as to how the consequence will be developed to result in good business and employment.

Mr. Miki: I have seen not only those made open by statistics and so on, but also the site of various academic-industrial alliances, and as Mr. Hosono says, I think the academic-industrial alliances in Japan are considerably strong. However, if asked whether the movement of values from universities to industries is really sufficiently accomplished, I am afraid there still remains some problems to be improved.

Mr. Hosono: As viewed from the university side, there is basically a motivation to introduce outside funds to further advance their studies, while from a company side, they may be expecting a good result to make a return on the amount of money they invested. However, it may be typical that they do not clearly say so, as they have not funded research fees as often as they have offered overseas universities.

Mr. Sawai: From the company side, it may be the best anticipated outcome that an association with a professor, will result in him sending excellent students...

Mr. Miki: What will become a touchstone in the future of academic-industrial alliance, I think, are businesses based on university professors' skill, university-launched venture companies, joint ventures in collaboration with university ventures and existing companies, etc. For instance, in joint ventures, intellectual property and knowhow are shared. In such a state, if university-related people can feel the mutual action of a new business and a new technology, the academic-industrial alliance will develop further, I suppose. Of course, it is not essential to have university professors themselves understand the business so deeply, but it is enough for them to know in what process and how their new technology leads to an economic

effect. Team building of resources other than university resources and an increase in interaction through the team will be important, I think.

Mr. Sawai: As to acting as a team, it is necessary that people having academic knowledge in technology and people skilled in business should get together and act with great zeal. Needless to say about the setting of themes, if there is no leader who can manage problems as his own, with responsibility, everything will end in a half-finished state.

Mr. Miki: Furthermore, funding is also essential. In what form are not only organizations which fund national research/development funds, but also non-governmental funding organizations are going to face problems? When an image of a business begins to be visible, not only funds but also professionals such as lawyers and patent attorneys as well as mentors will be required. The respective professionals carry out investment and support for developing early-stage university research achievement, besides doing another business as their primary business. Of course, it is natural that the supporters themselves should receive returns; this is the state of things in business. It seems Japan is still weak in making such a system.

Mr. Sakurai: It is also important to judge calmly whether looking at statistics only (what the technician-side suggests), will be really effective for good results in business. Such management is quite hard for those engaged in technological aspects only.

Mr. Miki: It relates to "risk tolerance." What degree of "risk tolerance" a head person has and how he transfers his authority? If organizations whose head can assume responsibility gradually increase, even if the final results turn out negative, the business will become more and more successful.

*The demerit system is an approach used in many Japanese companies where staff begin employment with 100 points and can lose points following actions or performance considered as negative.



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(Continued to the interview No.22)