

## Panel Discussion

# Issues and Actions Focusing on Education for the Next Generation, "Openness" and Role of the Private Sector



### Panelists

**Kazuhiko Toyama**

CEO and Representative Director, Industrial Growth Platform, Inc.

**Ellis Rubinstein**

President, New York Academy of Sciences

**Michiharu Nakamura**

Fellow, Hitachi, Ltd.

**Shulin Gu**

Professor, Institute of Policy and Management, Chinese Academy of Sciences, and Research Center of Technological Innovation, Tsinghua University

**Deepak Bangalore**

President and CEO, Samixa

### Moderator

**Yoko Ishikura**

Professor, Graduate School of International Corporate Strategy (ICS), Hitotsubashi University

### Summary

**Y. Ishikura**

In Part I of this symposium, key note speakers pointed out the accelerating globalization, phenomenal speed and magnitude of change, emerging conceptual economy and the increasing significance of innovation. As requirements for innovation, they emphasized the diversity,

identification and development of human capital with unorthodox, "out-of-the-box" thinking and the keen need for change in social systems.

In Part II, we have a distinguished group of panelists representing the U.S., China, India and Japan. We will focus on three topics, namely, education and development of the next generation, openness and the role of the private sector in resolving issues of global scale and scope.

### I. Education and development of the next generation

Through the process of planning the GIES open symposium, I have become increasingly convinced that innovation, which by definition involves change, and "creative destruction" will not come from those with vested interests, i.e. the so-called "establishment." Those in the establishment will naturally lose some of their power base when innovation takes place. This is because innovation brings about some type of transformation and departure from the status quo. It is almost impossible, therefore, to expect innovation to come from the establishment. That is why we decided to start the panel with the topic of the education and development of the next generation, who, I believe, are the initiators and

beneficiaries of innovation. It is imperative we create an environment in which the next generation can prosper and grow.

**Kazuhiko Toyama**

Before I talk about the development of the next generation, I would like to describe the status of human capital in Japan, from my experience of being a COO of IRCJ (Industrial Revitalization Corporation of Japan). IRCJ, with a government budget of 10 trillion yen, completed the renewal of 41 companies within three years, one year ahead of schedule.

All the candidate companies for IRCJ were in poor condition financially as well as operationally. In particular, the biggest weakness I found among these companies was the lack of capability of the top management. The capability of the top management group in Japan has been deteriorating and it is almost at its lowest level since the World War II, in my opinion.

The reasons behind this weakness are the peace and prosperity Japan has enjoyed over the past two decades. Because this country has enjoyed peace in international politics and economic growth for so long, leaving little incentive for change or innovation, the social system has become stabilized and inflexible. When the country is economically stable, the so-called “elites” enter the top university, in this case, The University of Tokyo and “the Best and the Brightest” among them will become government officials. Stable society will make lifetime employment and seniority systems a norm and compartmentalized or “silo” organizations, whether in government or the private sector, will result. People’s behavior, which is heavily influenced by the existing system, will become conservative and will not welcome change.

However, the environment surrounding the country and the world is undergoing tremendous change, as has been pointed out, requiring change and innovation.

Related to the development of the next generation, I would like to point out the sharp contrast of the non-

innovative top management group and the people on the factory floor or at the front line. Even among the companies listed for help by the IRCJ, people on the factory floor and at the front line interacting with customers on average work very hard. They are quite innovative as they generate quite a few innovative solutions. This is in sharp contrast with the little innovation coming from the top management group of the companies. What concerns me about the next generation is that even the people who work hard and are innovative today on the front line will eventually be driven by the incompetent and non-innovative top management. The younger generation will deteriorate, if they continue to work for the unimaginative and incapable upper management.

The solution to this problem in my view is to destroy the silos or compartmentalized systems and to focus on the mainstream of society, namely the government and The University of Tokyo. I studied the relationship between the percentage of the University of Tokyo graduates in the top management compared with the profitability and growth of the companies listed on the Tokyo Stock Exchange. For growth, there is a clear negative correlation, and there is no correlation with profitability. From this fact, I conclude that The University of Tokyo, from which I graduated, has generated defects in human capital. In other words, we have been using the wrong criteria for selecting and educating people. The qualifications required for innovation, and criteria for identifying and selecting the people who will initiate innovation and the necessary skills for innovation required of the next generation need to be reviewed, as the current system does not generate the next generation for innovation.

What I want to emphasize, in addition, is the need to go to the core of the problem, and start with changing the so called “mainstream”. Specifically, we should start with the government for the public sector and the University of Tokyo for the reform of education. I myself am a graduate of The University of Tokyo and feel associated with it, but

the best way to bring about change is by breaking it up.

People in Japan tend to look up to the highest in the field, whether in terms of mountains or universities. For mountains, they look up to Mt. Fuji, and for universities and educational system, they look up to the University of Tokyo. We should start with the most respected and emulated organization and institution, and not with the peripherals. We must reorient from the center. The paradox, though, is the fact that those who are in the mainstream have the power. They must change, but they have vested interests in the current system.

#### Ellis Rubinstein

Compared with the various views and comments for establishing and developing the social system mainly through social engineering we have heard so far, I would like to take a different view and focus on individuals who would initiate and develop innovation.

Innovation requires individuals with insights and new perspectives. We need people who can transform new concepts into new products and services. To discuss the required characteristics of individuals, I would like to introduce a new perspective, based upon the intersection between business and neuroscience. (For reference, see “*On Intelligence*” written by Jeff Hawkins who founded Palm Pilot.)

Brains consist of two functions--higher brain and lower brain. The lower brain functions process regular issues we need to deal with instantaneously, while the higher brain takes care of major, complex problems. In order to develop an innovative brain, people need to be exposed to complex challenging problems frequently. Then the lower brain function will be capable of processing complex issues, and the speed of processing will accelerate. The higher brain function, then, will be able to deal with extremely complex and challenging issues.

I believe that there used to be many more Japanese who spent considerable time overseas than now and that more people seem to be locked into their own social experiences.

When placed in this context of brain functions and

the requirements for developing innovative brains, the problems with the educational systems and the recent trends in Japan become clearer. Education in “silos” with an information-focus rather than being experience-based, whether in primary or secondary schools, as they are today, will not be appropriate for developing innovative individuals. The lack of diverse social experiences and the trend away from encouraging the younger generation to have different experiences in Japan will go against the environment needed to develop an innovative brain.

This status and the recent trends found in Japan are in sharp contrast with what China has been doing recently to promote innovation. China has sent thousands of young scientists and engineers to world-class laboratories and tried to encourage them to return to China by setting up various incentives such as bigger responsibilities and compensation. Some 20% of them come back to China to spearhead innovation in what would otherwise have been rigid academic systems.

I recall that Japan used to send many scientists and engineers in their 30s and 40s overseas. But I understand that this trend has declined and today the young generation tends to stay closer to the family and enjoy the quality of life in Japan. It is a major problem, more so in the current context.

In contrast with the trend in Japan, there has been a dramatic change in young Americans. They used to be very narrow in their interests in the 1990s, but are increasingly interested in what is happening outside of the U.S. They have more desire to have international experience, to help people, and to be volunteers in developing countries. Young Americans want to make some contribution to the developing world, and some take a year off from college and go overseas. None of this phenomenon existed even 10 years ago in the U.S. at this scale. This trend gives us some hope.

#### Y. Ishikura

I see that the common thread between the two panelists is the importance of experiences of various contexts and of

facing complex problems.

**II. Openness**

**Michiharu Nakamura**

I was sent by the company Hitachi to Caltech many years ago and to San Jose recently. These overseas experiences had a significant impact on my career and from my own experience I agree that international and diverse experiences are important, particularly for the younger generation.

I want to discuss the role of the private sector in innovation and innovation within enterprises.

(Slide 1) shows the ecosystem for open innovation around companies in the private sector. Companies today collaborate extensively with the universities and other research institutes, which is something that did not happen 20 years ago. Large corporations such as Hitachi also have venture capital departments and make investments in ventures. Collaboration with the universities and other institutes as well as investment in ventures is carried out both for overseas institutions and for Japanese institutions in a similar way.

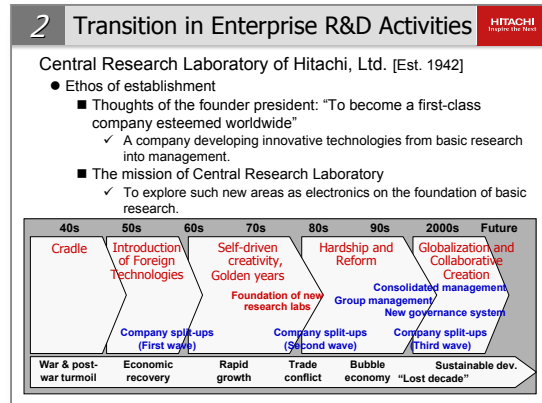
Companies like Hitachi also have many subsidiaries and affiliated companies, where sharing of technology and human capital takes place. By having many related companies and having collaborate relationships with universities etc. outside of the corporations, the private sector has established a unique ecosystem, thus promoting the speed of innovation.



Title Slide

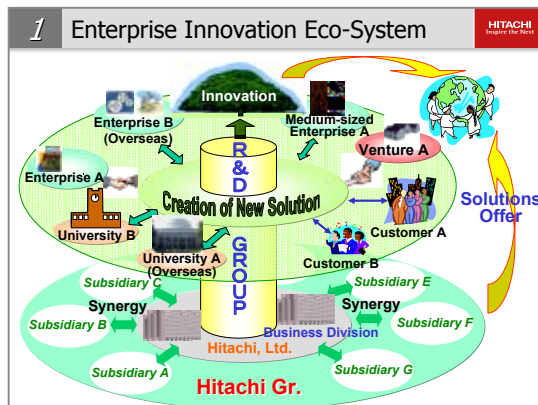
(Title slide)

Private sector and corporate R&D is quite significant in Science & Technology. 75% of R&D investment in Japan is carried out by the private sector. This tendency is about the same throughout the world.




Slide 2

(Slide 2) shows the past paradigm shift in R&D, by tracing the activities of the Central Research Lab of Hitachi.



Slide 1

**3 Innovation in an enterprise (1)** 

**Years of the introduction of foreign technologies [50s – early 60s]**

- Semiconductor transistors
- Nuclear power
- Computers
- Others
  - Receiving & transmitting tubes, Transistors, Television receivers, AM & FM radio technologies, Color cathode-ray tubes, Integrated circuits


**Years of self-driven creativity [60s –70s]**

- Domestically developed computers
- Golden age of electronics research
  - Silicon semiconductor, Compound semiconductor, Amorphous semiconductor
  - Semiconductor Laser, High-sensitivity pick-up tube
  - Bubble memory, Magnetic memory, Optical disk

Slide 3

(Slide 3)

During the 1950s, the R&D activities focused on importing overseas technologies for the purpose of catching up. During the 1960s and 1970s, we had a big trade surplus and shifted our efforts towards developing our own indigenous R&D. This era is often called the Golden Age of electronics.

**4 Innovation in an enterprise (2)** 

**Turning point of technology management [80s]**

- Distance between basic research and industrial competitiveness
  - Appearance of the "Death Valley"
  - Shift of focus from the linear model to concurrent engineering
- Backwardness in capturing global technology policies
  - The Bayh-Dole Act, Preparedness of capital funds
  - Protection of software property, Emphasis on intellectual property
  - Trade friction on semiconductors
- Problems in technological innovation
  - Delay in effort onto disruptive technologies
    - ✓ Once semiconductor, computer and communication became the core business, the research resources were poured in R&D to improve specifications on the trend extension.
    - ✓ The "Elasticity of Research" needed to create disruptive technologies was lost.

Slide 4

(Slide 4)

During the 1980s, the companies went through a period of restructuring. At one point, we at Hitachi even debated whether we should continue the Central Research Laboratory, which seems so absurd today.

**5 Innovation in an enterprise (3)** 


**Reform of innovation systems to meet the changes in business environments**

- Transformation of management of technology of conglomerates
  - Strategic positioning
- Conquest over issues:
  - Reinforcement of technological power for business operations**
    - ✓ Transfer of human resources from research to business
  - Reform of research schemes to meet company split-ups and consolidated management**
    - ✓ Funding on group-wide frontier research and common platform research from consolidated management fees
  - Speed-up of new product development**
    - ✓ Matrix management, Collaborative creation, Industry-academia collaboration, Corporate venture capital investment
  - Proactive actions towards the successful business restructuring**
    - ✓ R&D support to carved-out new companies
  - Reinforcement of basic and frontier research**
    - ✓ Expansion of "Agenda-setting" research and Technological platforms

Slide 5

(Slide 5)

The companies are now returning to their own unique basic research. The Golden Age of technology is returning.

**6 Actions to be taken -- An industrial view** 

**Revival of effervescence of the "Golden Age" of Innovation**

- Innovation as execution
  - Discussions are enough, let's execute now.
- Challenge
  - Let's set aggressive targets towards the future, and challenge them with the highest spirits.
- Encouragement
  - Let's encourage the young generation with ambition/ bright ideas, and bring them an innovative playground.
- Openness
  - Let's direct our eyes to the broad world, to academia, to business partners, and even to the competitors.
- R&D risk taking
  - Let's reinforce incubation fund system.

Slide 6

(Slide 6) shows the issues we face today in the revival of the Golden Age. What is needed is action, rather than discussion. Innovation as execution is more important than discussion. We also need to establish challenging goals, so that the younger generation will be motivated. We need to encourage the younger generation. Openness is critical. Last but not least, risk-taking is a part of R&D.

One other point is the importance of small & medium sized companies, particularly in their role of creating jobs. As was mentioned in the key note address, employment is often created not by the large corporations, but by the small companies. Thus the challenge for Japan is how to develop and encourage more ventures.

Y. Ishikura

We hear that the Golden Age of technology is returning. Is this actually happening or not? If not, we need to identify impediments.

#### Shulin Gu

Regarding the status of China, China has decided, like Japan, to pursue innovation-based growth. The ranking of innovative capacity by countries that was shown at the beginning does not list China. However, China is now in the transition from an economy based upon natural resources and low labor costs to an innovation-driven economy. During this transition, the acquisition of technology is to shift from mainly relying on licensing and imitation to endogenous development. China's approach of shifting its economy to an innovation-driven economy is comprehensive in that its policy initiatives cover relocation of resources, distribution changes, improvements to the competitive environment, regulatory reforms, institutional development and the enhancement of education. Whether it will be successful or not remains to be seen, but our approach is notably comprehensive and systematic.

Despite the difference in the stage of economic development between China and Japan, there are many areas where collaboration is possible. One possibility is that of the universities. Universities in China have opened up to the world, but they have not been successful in establishing close relationships with those in Japan, despite the short physical distance. Another area for potential collaboration between the two countries includes research and technology in environment-related areas. China is now opening up in this area and there is a huge potential for the two countries to collaborate.

Challenges common to the two countries are changes in both mentality and institutional systems. In particular, education requires changes in both badly. China has had a long tradition of having a so-called "elite" education system based upon seniority. When we try to open up the educational system to the world, many casualties result. I sincerely hope for the success of the Innovation 25 strategy in Japan, as it seems quite similar to our approach in its

endeavor.

#### Y. Ishikura

We would like to hear more about how you were able to open up the universities. You mentioned the difficult issue of bringing about changes in mentality and institutions. How do they relate to each other? Would opening up the universities trigger the changes in mentality and institutions?

#### Deepak Bangalore



(Title slide)

#### -Silicon Valley style open-system innovation

In Asia, the emphasis is on technological innovation, but in the U.S., the spectacular success enjoyed by companies has to do more with business model innovation--technology is considered by many to be a mere commodity that anyone can obtain, through R & D, licensing, M&A, etc. The U.S., and in particular, Silicon Valley, is far ahead of Asia in business model innovation.

Some examples of business model innovation include:

- 1) fabless U.S. semiconductor companies which carry out designs in Silicon Valley and subcontract manufacturing to Taiwan in order to compete better with Japanese companies and regain their dominance in the industry;
- 2) viral marketing, unique marketing models using the internet, for example, by Hotmail; and
- 3) Microsoft in itself as a new business model because the company has built an ecosystem with many niche firms (regardless of



size) around a common platform based on the Windows Operating system.

Small-sized firms are often the sources of disruptive innovation, as is seen in the example of Formula One racing. Large companies like Toyota or Honda have made huge investments, while, small race teams with significantly smaller investments consistently dominate, having a much more efficient environment for disruptive innovation.

For large companies, spin-outs and spin-ins are very important channels for innovation. Cisco Systems is well known for 'spin-ins', as the company has been built upon M&A activity, acquiring technology and innovation by absorbing many small and medium size companies.

Unlike in Japan, Silicon Valley venture capitalists do not just provide financing. They are deeply involved with the companies they fund, providing them with access to their vast networks, as well as hands-on management help. That is why people say that ventures need to be located within a 20-minute-drive from the venture capital companies in order to get funding.

Networking is the core element of Silicon Valley, though the Japanese are not aware of the importance of networking as a requirement for open-system innovation.

-Issues facing Japan

**CHINA**  
**INDIA**  
**2,451,718,042 competitors**

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Slide 1

(Slide 1) There is no sense of crisis and urgency in Japan about the sheer number of people in China and India. This slide shows over 2.4 billion people are in these

two countries as potential competitors for Japan. They will soon catch up with the affluence and advantages in economic development that Japan now enjoys. By then it will be too late for Japan.

The best students from India either tend to go to the U.S., or go to Europe, stay in India, or probably come to Japan in that order. In other words, the best students do NOT come to Japan. Unfortunately, there is little recognition of this fact in Japan.

**Need to create an entire ecosystem: Silicon Valley rules**

- **Education:** Students, entrepreneurs – networking, risk taking, funding
- **Innovation:** Spin-offs, spin-ins, reduce stigma of failure, availability of funds, personal financial risk – bring down risk of entrepreneurship
- **Investment:** SV VCs to fund Japanese startups, change Japanese VCs' ops methods, risk & ROI @ SV model, reduce entrepreneurs' personal risk
- **Immigration:** US fueled by immigrants, big competitive advantage over Japan – very highly skilled labor from India, low skills from China
- **Internationalization:** Indian Micro-MNCs, go-to-market globally, Japanese startups – easier penetration abroad than customers in Japan
- **Interdependence:** Japan-US-India coalition – greatly increase strategic and competitive position for Japan, in Asia and in the world

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Slide 2

(Slide 2)

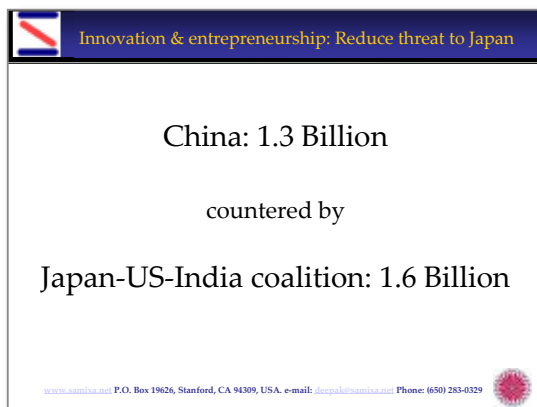
Japan has to adopt and adapt the best practices for innovation and entrepreneurship from other parts of the world. There is no learning in Japan from the best practices throughout the world, either. There are many successful venture capital models in the U.S. and in particular, Silicon Valley, that need to be assimilated within the Japanese system.

What is needed in Japan is NOT a revamp of science education. Young Japanese, and Japanese society itself, have to be educated in developing social and entrepreneurial skills in business-networking and risk-taking. Japanese society is usually risk-averse to an extreme level. The traditional stigma attached to failure is another hurdle for Japan. In Japan, if you fail once, you usually cannot recover. With this type of mentality in society, innovation will not take root.

Large Japanese corporations do not encourage venture

companies in Japan. Japanese venture companies should follow the Indian business model of micro-MNCs which use a worldwide business and marketing strategy right at the very beginning.

Traditionally, the immigration policy of the U.S. has brought many highly skilled and trained immigrants (including myself) with new skill sets to the country free of charge. Highly skilled immigrants to the U.S. are very attractive sources of innovation to the country.



Innovation & entrepreneurship: Reduce threat to Japan

China: 1.3 Billion

countered by

Japan-US-India coalition: 1.6 Billion

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Slide 3

(Slide 3)

In order to respond to a rapidly growing China, a three-way collaboration between Japan, the U.S. and India would be effective, as India is a very close partner for the U.S. and it has a very good relationship with Japan.

#### Y. Ishikura

Throughout the key note addresses and initial remarks by the panelists, I have found some common factors running across many countries, such as innovation-based economic growth. One clear distinction I find that sets Japan apart from others, however, is the dynamism or rather lack of dynamism for implementation.

Let me turn to the panelists with the question regarding the trigger for implementation. What triggered the move for the dynamism in your countries? What triggered, for example, the recent movements of opening universities to the world in China or increasing interest in the rest of the world among the American youth? Why in Japan do we

talk about these issues without taking any action? Is it due to the lack of a sense of crisis, as Deepak pointed out?

#### E. Rubinstein

The reasons behind the recent interest and moves for volunteer activities among the young people in the U.S. are as follows:

- Americans tend to get tired of one thing after a while. Making money has been hot for some time, and Americans want something different from making money.
- Media coverage of Angelina Jolie, for example, going to Africa with Jeffrey Sachs to do volunteer activities there has had some impact.
- Parents support their kids when they show interest in these activities. For example, one of the top management of Pfizer encouraged his 19-year-old daughter to go to some dangerous places to teach kids volleyball. Their daughter came back as a different person and her friends see that. This has quite an impact.

#### K. Toyama

I think Japan had a sense of urgency and crisis, and as a result was more dynamic 5 to 10 years ago when the economy was at the bottom. It was more dynamic as there were more spin-offs from large companies and ventures. Now they are declining. There is a sense of allergy concerning mergers and acquisitions as well. The most popular companies for undergraduate students for jobs today are the same as 20 years ago. The ratio of the University of Tokyo graduates among those passing examinations for government officials is very high. Their parents' generation is relatively more conservative and encourages their sons and daughters to get jobs in the government, large companies and large banks. This is quite a serious problem, in my opinion.

Social reform and transformation of social systems takes place as a result of both internal and external pressures. If we open up various institutions to the world, external pressures will increase.

To the government, pressures from the voters as well as external pressures will trigger reform. Universities in Japan



often hate external governance, but they need both types of pressure—internal and external—for change.

**Y. Ishikura**

It is true that universities and government should be open to the world, and yet, those who have power and vested interests will not have the incentive to do so, as they will be under new external pressure. How were the universities in China able to open themselves to the world?

**S. Gu**

We are still only half way in China towards opening the universities, at Stage I. Funding and faculty recruitment has become open, turning away from government sources and towards opening up to international professionals, but observation of their behavior patterns leads us to believe that we still need a change in mentality to share knowledge and to allow scientific community development. There still remains the strong sense of a seniority system in Chinese academia and universities, compared with those in the U.S. and Europe. Young scholars tend to hesitate in expressing their views among senior people, as they respect seniority. They will not express their views even among senior classmates freely. In order to create new knowledge and share it in the academic community, we need to work more on opening up and unleashing free and creative academic behavior.

**M. Nakamura**

One of the reasons the Japanese younger generation have rather narrow perspectives is the financial burden on the part of the companies when they send young employees overseas. The universities or laboratories did not charge high expenses for accepting young engineers and scientists before, but since the 1980s, they have begun charging fees. The expenses are reasonable, but this expense has incurred a financial burden for the companies. The companies have not been able to afford to send as many as before.

One of the reasons overseas universities have become open is because they want to change and they realize they need new blood. Tsinghua University in China and Hitachi have reached a comprehensive institutional collaboration

agreement. The driving force behind the agreement is that both parties are keen on change. British universities have been very interested in change and transformation and visited many companies in Japan seeking collaboration since the 1990s.

**Y. Ishikura**

I hear the pace of change in Japan is relatively slow. If the rest of the world is accelerating its pace of change, I am afraid Japan will be further behind. Will it not?

**D. Bangalore**

One of the most innovative countries in the world is Israel. Technical innovation in Israel, in terms of patents per capita basis, is extraordinary. Israel is not only innovative with technology--the people excel in other areas as well. For example, the Israeli air force is one of the best in the world because it is purely based on performance. Mission and strike leaders are chosen on the basis of performance and experience in the task at hand, and not on seniority of rank. Unless people base their selection on performance, they cannot survive in this region. The focus on performance is found throughout society.

I do not see that sense of urgency and crisis in Japan. If we look back at the history of Japan, however, there were quite a few revolutionaries and innovative people immediately after Meiji Restoration or after World War II, which were disruptive times.

Japanese need to be better informed about the dynamics of international business, about regional realities and develop a sense of urgency prior to such disruptions.

**Y. Ishikura**

From our research of transformation and innovation in other countries, I can tell that crisis has triggered innovation in many other countries. I gather that there was a sense of urgency and crisis in Japan several years ago, but it is now going back to conservatism without a sense of urgency.

**M. Nakamura**

Japan is now recovering from the “lost decade” and we are still struggling to change, faced with new challenges.

The key now is whether we can share the sense of urgency across the generations and whether we can maintain that momentum and drive for action.

#### **E. Rubinstein**

Americans always look for something new and they change jobs every so often. Americans say that they do not want to stay in the same job for more than 5 or 10 years. In contrast, the Japanese career model is much longer-term. It appears that the companies are trying to recover the lifetime employment system and maintain it.

I used to work at Newsweek. In my era, there were two kinds of people there. The first group was those who joined Newsweek when they graduated from college and stayed there. The other group was those who were hired in mid-career because they had done something outstanding elsewhere. Newsweek hired them because they expected them to be an agent of change to help the magazine improve. The former group, though they were excellent in their job, had no experience of changing jobs and were afraid of change. The latter group was not afraid of change as they themselves had changed their jobs. The newly hired group left the company after they realized that the company was not committed to change.

#### **K. Toyama**

Japan is now at a delicate equilibrium. The country's ranking of GDP per capita in the world has declined, and the Japanese yen is getting quite weak. The exchange rate reflects the power of the country, and thus, the international community does not expect much growth from Japan. Finance is like blood for the human body. Using this analogy, Japan has recovered from acute disease through financial reform, but she still suffers from chronic "lifestyle-related" disease. The next decade is the turning point for Japan, and will determine whether she will make it or break it.

Baby boomers, called the "DANKAI" generation in Japan, who supported the old system will retire from the active labor market and will be free from the system. People in their 20s and 30s who entered the labor market

when economic conditions were very unfavorable are quite skeptical about the existing system. This "lost generation" is quite tough. However, this generation has been supported financially by their parents who are baby boomers and have not faced the crisis themselves.

When the baby boomers retire in a few years, they will depend upon the social welfare system for their living. However, the social welfare system is not functioning well. They will then depend on their own financial assets for living expenses. There is no way they can maintain their lifestyle with less than 1% returns. The low interest rate will become a critical issue for them. The pressure to raise the returns from financial assets will increase, which will put pressure on the government. The government sector whose productivity is one of the worst in the service sector will face tremendous pressure from the voters. The next decade will make or break Japan.

### **III. Role of the private sector in resolving the global issues we face today**

#### **Y. Ishikura**

Here, I would like to turn to the role of the private sector in resolving global issues such as energy and environment. I recall that Ms. Deborah Wince-Smith mentioned that the small companies are creating jobs and not the large companies. Could the panelists discuss the role of the private sector, including their role for employment as well?

#### **M. Nakamura**

When I was in charge of venture capital at Hitachi, I thought that activities of the Japanese ventures were at a rather low level. Venture company activities have grown more now as the government has encouraged entrepreneurship and supported venture activities through many policies. And yet, the investment in ventures in Japan is only about one tenth of that of the U.S., thus both public and private funding should be encouraged much more for ventures in Japan.

The amount of investment in each venture company in Japan is very small at the level of tens of millions of yen, again one tenth of that in the U.S.. A system to encourage

and support venture activities should be promoted much more.

**D. Bangalore**

The biggest difference between the venture capital in Japan and that in the U.S. is in providing networks and strategic advice. The U.S. venture capitals are very active in advising venture companies in overall management, by using their network extensively, while the Japanese venture capitals limit their activities to financing.

As mentioned earlier, it often is said that venture companies beyond the 20-minute drive distance of the major venture capitals can not get funding. This rule of thumb is due to the frequent contact between venture capital companies and venture companies in Silicon Valley. Just throwing money at venture companies does not produce results. Help with strategic business aspects is often much more valuable than the funding.

Micro MNCs in India (the companies whose size is small but who extend their activities throughout the world), most of which are in IT industries, operate in the world market from the beginning. This is partly because the domestic market of India is too small. Unless they have friends who are in upper management positions in the U.S. and can give business to them as captive subcontractors, they need to seek customers throughout the world from the beginning. Japanese venture companies should adopt a global go-to-market strategy, if they are to compete successfully in the world market.

**Y. Ishikura**

Earlier, two keynote speakers pointed out the fact that the rapid progress of ICT seems to have provided more opportunities and means to extend businesses beyond national borders, regardless of size, if there is the will to do so. What other opportunities are there for the private sector?

**E. Rubinstein**

I participated in the World Economic Forum Annual Meeting six years in a row. During these six years, I saw significant change in the activities of global corporations

throughout the U.S. and in Europe. The corporations began to realize that they had to care about problems which had been once considered social problems. Their interest has expanded from their own profitability in the relevant market to social and global issues. The movement of social entrepreneurship and public-private partnerships began.

In the U.S., we have had a long tradition of philanthropy and contribution to the cause in the private sector. However, it has been rather local. Recently I see more companies taking actions beyond their local community on much broader issues such as education in the country, and the resolution of global issues. Their activities are accelerating as well.

Let me take one example. GlaxoSmithKline has a major presence in Philadelphia. I was told by a top GSK executive that GlaxoSmithKline has shifted much of its philanthropic investment from local issues to global issues such as global healthcare.

In comparison, there are very few Japanese companies with such activities as far as I know. I think Japanese-owned car companies can pioneer these efforts, and there is more potential for private companies to take action on social activities, beyond their traditional business activities. There are a few Japanese companies - such as Sumitomo Chemical which has donated millions of long-lasting, insecticide-impregnated bed nets to Africa--which serve as spokespersons for social causes, targeting society at large. But compared to European and U.S.-owned companies, it seems that Japanese-owned companies lack to drive to participate in public/private partnerships on a global scale.

**Y. Ishikura**

The irony is that Japanese companies DO have technologies which can help resolve global issues such as energy efficiency and can make a significant contribution, and yet, they have not informed the world of these facts nor their efforts.

**Q&A from the floor****Question 1**

It seems that it is the universities among the government, companies and universities that need innovation most badly. Could the panelists who have had overseas experience at universities comment on this?

**K. Toyama**

The absence of governance is the main cause for the lack of innovation at the universities. Decisions based upon the consensus are made at faculty meetings and thus, people spend all their energy fighting civil war within the organization, with little energy left for the competition outside. That is why universities are losing competitiveness.

I think the real customer of universities is society and society must send signals. The companies are expected to grow by hiring graduates of good universities. And yet in Japan, those companies with more The University of Tokyo graduates among the top management have lower growth rates. The University of Tokyo has been producing defects.

**Y. Ishikura**

The vision of ICS, the graduate school of International Corporate Strategy at Hitotsubashi, has two parts. One is to attract good Asian students who currently bypass Japan to go to business schools in the U.S. and Europe by participating in global competition. Thus, we start our academic year in the fall and everything is done in English. Our basic concept is to build one bridge between the West and the East.

Another important vision of ours is to reform the higher education system in Japan which is perceived to be quite low in terms of international competitiveness.

When we reflect upon the six years we have been in business, we at ICS have made very little impact on the higher education system. Recently, I have become more attracted to the idea that, apart from the institution of universities, we should make knowledge and information open to the world and build a forum-like platform so that people can develop problem-solving skills by using the most updated technologies because I believe this is the

fundamental purpose of education and learning.

**M. Nakamura**

I mentioned earlier that during the 1990s, presidents and deans of overseas universities and graduate schools began visiting Japanese companies. Recently Japanese universities have emerged and the relationship between Japanese universities and companies has become similar to those with overseas universities. For example, Hitachi has a comprehensive collaboration program with the University of Tokyo and Hokkaido University. The companies need to explore more opportunities to build relationships with the universities in Japan.

**Question 2**

There are few role models of social entrepreneurs in Japan, in the same way as the venture companies. How can we promote social entrepreneurs in Japan?

**E. Rubinstein**

You can apply the approach China is now trying. They send students to the best labs in the world and they expect those who return later to bring about a change as an agent of change. I do not think there is a similar policy in Japan.

When I was at the Science magazine, we began a website for career advice and guidance to the post-doctoral fellows. At the beginning, we planned to cover only the U.S.. However, we received many requests and inquiries from many countries with which we collaborated. But we were not able to set up collaboration with Japan.

There are few role models in Japan, even though the Japanese younger generation is interested in the vision and activities of the social entrepreneur. They have little knowledge of what it is like to be a social entrepreneur and/or what value they see in their own activities. We need to let them know and see themselves.

**K. Toyama**

IRCJ was a type of social entrepreneurship. Government officials work under the seniority system and that is one major source of inefficiency. However, IRCJ was not like that. There are also many young people in the organization I set up who are interested in social entrepreneurship.

**Question 3**

What should we teach in education? I gather it used to be knowledge-based, but in the future, we will need more sensitivity, curiosity, imagination and creativity. What do you teach in your country today and what should be the ideal education for tomorrow?

**D. Bangalore**

Today, anybody can get information on the internet. Unless you have know-how as to what you do with the information, it is useless. Those with experience and those without tend to interpret the same information in completely different ways.

Regions such as Silicon Valley are full of know-how. When a company announces new patents, and/or launches new products, experienced people in the business area will understand what they mean in relation to general trends in the business. Unless you are in the area, you cannot teach this know-how, nor can the implications and interpretation of all the detailed information be obtained so easily.

**E. Rubinstein**

In the U.S., the primary and secondary education system is in a very poor condition, but one thing we have realized is that experience-based learning is indispensable. Students need to participate in learning. We have had some successful examples and projects with experience-based learning, but it is still rather local. The task ahead of us is how to make this into a system.

I also want to emphasize the importance of informal education. Formal education in the form of school education is just a part of the total education system. We can use museums and other places after school, which I think is quite important.

There are some regions in the U.S., where people have very narrow perspectives and have no global perspective. New technologies such as ICT are not accepted in these regions and cannot be used well. How to resolve these issues is a problem for the U.S.

**S. Gu**

60% of the Chinese population live in rural areas.

Education in China is known for strongly emphasizing the disciplines of science and technology, but it has not penetrated into the rural areas at all. Regarding the question of what and how to teach, I think we need both theory-based and experience-based education. How to combine the two has been studied extensively. So far, our educational system has been elite and theory-based. At our universities, we have tried to incorporate experience-based education. The key is how to combine the two.

**Y. Ishikura**

The first step to building an innovative society seems to be opening our institutions. Wherever we are, if we have global perspectives, we can make the best use of the latest ICT. How we use them is up to us. That is innovation in the real sense of the term.

Innovation always comes with risk. If we are risk-averse, we can never start. We need to take action to build an innovative society. Thank you very much.