

The International Symposium Transcription

Opening remarks by Dr. Yoshikawa

Dr. Yoshikawa

I would like to say a few words as one of the organizers of this Symposium. I am very happy that there will be discussion about the creation of an Asian Research Area, a very challenging but in some ways inevitable subject at this symposium. As often mentioned elsewhere, I say that innovation is very important in the era of transition from the age of development to the age of sustainability. Governments also describe innovation as being important. Then, what is innovation? I would say it's change that is taking place in all aspects of social activity. One change activates many things, and that's the principle of innovation. However, the era in which change itself has value is over. Changes pursued by people and organizations need to be aimed at addressing sustainability, and innovation should direct this change. Current innovation will direct the whole world toward sustainability. As mentioned elsewhere, problems of sustainability involve global warming, bio-diversity, or the circulation of materials inside the earth, and these kinds transfer have been changed by the activities of human beings, and are affecting the ecosystem. These problems are actually problems concerning sustainability. Current innovation should change the activities of human beings so that the earth will survive for a long time. To do so, various things have to change. Companies have to change. Research activities have to change. Educational activities have to change. People's lives also have to change. And all these changes come at a cost. I call it the cost of change. Sometimes this cost of change is very large. For example, if a venture company enters into a market where established companies are providing traditional goods, there will be competition between the venture company and established companies. The success of the venture company will cause a structural change in the industry. Therefore the venture company and the established companies usually play a survival game, and if the survival game is too serious, the cost of change will become too large. I am not saying that the established companies should lose or withdraw. There should be some kind of balance between competition and cooperation, because if such a balance can be reached, the cost of change will be minimized. Unfortunately, there is no theory to account for this cost of change. This discussion reminds me of an example of international collaborative research in the 1980s on manufacturing technology called intelligent manufacturing (IMS), which is still used throughout the world. When we proposed cooperation among the relevant manufacturing companies, we were told that manufacturing companies do not cooperate but compete, and that the promotion of cooperation among manufacturing companies sounded like socialism. We received serious opposition from the industry. I think they were wrong. I really think that cooperation is necessary in basic fields in the course of competitive development. For

example, all manufacturing companies share common knowledge in basic fields such as Newtonian dynamics, and they should cooperate in building this basic knowledge. They can compete based on common knowledge. However, if competition is too intense, the cost of change will increase. Therefore, it is necessary to figure out how to integrate cooperation into competition and lower the cost of change in all areas, including industrial research and science and technology during the transition from the age of development to the age of sustainability.

I think that the development of regional research areas, including in Europe and North America, stems from a major trend toward a conscious effort being made to develop cooperation and collaboration in their regions while admitting competition within the region. I think that a regional research area will be a very effective method to lower the cost of inevitable change for human beings. I think that the creation of an Asian Research Area does not merely mean the improvement of regional research. An ARA will play a key role in solving the problem of minimizing the cost of change as well as saving the well-being of people, which are essential conditions for the survival of human beings. I think that the realization of the ARA concepts is an immediate concern for various stakeholders including governments, civil society, and industries. I would like to express my expectations and praise for those who have developed the ARA concepts and hope the symposium will produce great success. Thank you very much for your attention.