

## Essay

### **Toward the Globalization of IEICE -Beyond Various Hurdles to the Science and Technology Development in Electronics, Information and Communications-**



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Facing various hurdles to the science and technology development in the field of electronics, information and communications, I would like to refer to the fundamental idea and expected role of globalizing IEICE as the President, toward the evolution of Information and Communication Technologies (ICT) and the future of the organization.

#### **Background for Globalization of IEICE**

IEICE has much contributed to the construction of ICT integrated society so far, and the centennial anniversary of IEICE will come up in five years. We do not always have only prosperous issues for the future of the organization. The super-strong Yen in addition to natural disasters including the Great East Japan Earthquake, Tsunami, and Thailand Floods, attacked the society of Japan so that quite many industries covering consumer electronics or ICT have been compelled severe competition in the market and urged on revolution. Along the worldwide trend of globalization, the development of global human resources has been debated everywhere and most of universities have been forced into the revolution of education. On the other hand, through the experience in huge natural disasters, we have learned many important lessons for the future of the society represented by getting out of the schemes biased to economy or efficiency, recognizing the needs for new schemes of system design based on disaster prevention or minimization and pursuing the way not to conquer the nature but to coexist with it. Under any circumstances, we have eager worldwide social expectations for ICT so that IEICE must do the best to live up to the expectations. Above all, it is definitely required to revive the social reputation to ICT researchers and engineers.

#### **Worldwide Information Delivery on the Web**

The world's lowest-cost broadband environment has been built and it also boasts a first-class environment for use of both conventional mobile phones and smartphones. When even TVs and various other home appliances are connected to the Internet, as they are today, technologies within the competence of this Institute are necessarily so closely linked to people's lives as to exert a strong influence on them. In particular, we are in the era where Internet literacy and knowledge about information security are indispensable for the people's lives. This implies that the IEICE cannot afford to stand aloof from the society. I believe that ICT vendors and telecommunications carriers at least, the Institute as well, have to share the responsibility of providing the opportunity of literacy education in the Internet era, for the society.

#### **Let's Foster the Dream through Roadmaps!**

In the 1960s and 1970s, the term "electronics" conveyed a lot of dreams. However, today, as a result of the remarkable progress that has been made in electronics, optical and communications technologies, it might seem that every technology that was once dreamed of has been realized, most of youth have no future perspectives on these fields. That must be a reason for the declining attraction of our field of expertise.

About three years ago, the Physical Sciences and Engineering Societies Liaison Council was formed under the Section III Meeting of the Science Council of Japan (in its 21st term) to exchange information and discuss issues of common concern to the participating institutes and societies. The Council agreed to compile a roadmap that would summarize, in an attractive manner, dream-inspiring science and technologies in each of the physical science and engineering fields, projecting what the world would be after 30 years. Within the limited time, a roadmap was developed and disclosed at the Symposium of the Section III Meeting of the Science Council of Japan last summer. This endeavor was initiated partly because doubts about the value of funding the development of a super computer had been raised in the legislative hearing with the aim of weeding out unnecessary government expenditure. In order to invest the large-scale tax revenue in scientific or technical research projects, it is essential to have the significance of these research activities understood by the general nation. The motives for formulation of the roadmap were to gain public understanding by showing how science and technology benefit people's lives through presenting dreams of targets after 30 years. In addition, the roadmap was designed to solicit youth represented by senior high school students to develop their interest in science and technology and, hopefully, to major physical sciences or engineering at universities, by presenting an image of the promising world in coming 30 years. It is indeed extremely important for IEICE to draft and publish a roadmap that would give younger people something dream to take an interest in the fields of science and technology and encourages them to pursue careers in the area of ICT.

Incidentally, about four years ago, at the request of the Ministry of Economy, Trade and Industry, four engineering societies (Japan Society of Applied Physics, Japan Society of Mechanical Engineers, Chemical Society of Japan, and the Robotics Society of Japan) developed a roadmap for a 30-year period up to 2040. The first version of the roadmap created by the Japan Society of Applied Physics is open on the Web now. The roadmap submitted to the Physical Sciences and Engineering Societies Liaison Council in the Section III Meeting of the Science Council of Japan by a group of institutes related to electrical engineering, and the roadmap co-created by the Strategic Planning Section of IEICE are also available on the Web.

Stimulated by these moves, IEICE has realized the significance of creating, periodically updating, and maintaining a roadmap. Last year, it established the Roadmap Committee, which would report directly to the Board of Directors. The Committee is currently developing a dream-inspiring roadmap targeting 2050 year, in cooperation with IEICE Societies. I sincerely look forward to publication of a roadmap that fosters common understanding among members about the future of ICT, and that provides dreams for younger people.

## Toward Global IEICE

When it comes to discussing the globalization, it reminds me of the words which I learned from the Vice President of an European university several years ago. She said, "As viewed from a European perspective, Chinese universities stand out but Japanese universities are almost invisible." I was shocked by her candid remark, even though I was vaguely conscious of this perception. It was reported that during a recent visit to Japan by the President of Harvard University, he mentioned that the number of new Japanese intakes entering his institution had shrunk to one.

Up until some years ago, researchers from Japanese telecommunications carriers and vendors would frequently be invited to international conferences in the ICT field, and they used to take pride in that. Regrettably, it is becoming rare these days to see such presentations by employees of Japanese industries. This is indeed lamentable, even allowing for the explanation that this is due to giving priority to standardization activities. In contrast, Chinese and Korean enterprises have begun to be more assertive.

Recently, the National Institute of Science and Technology Policy (NISTEP), under the Ministry of Education, Culture, Sports, Science and Technology, analyzed and released a national breakdown of the number of papers that had appeared in IEEE transactions and in the proceedings of IEEE-hosted conferences. The NISTEP also reported that in 2008, the number of papers presented by Chinese authors in international conferences exceeded the number of papers presented by American authors, to take China on the top of the list, while Japan remained at the third place. While the numbers of papers from several countries continue to increase, the Japanese contribution is more or less static, causing Japan to gradually fall in ranking. These days, when I attend IEEE conferences, I clearly notice the sharp increase in the number of Chinese participants. They are making their presence felt to an increasing extent.

According to the recent statistics, a national breakdown of the number of papers published in the English editions of IEICE transactions over the past seven years, there is a noticeable trend of an increase again in the number of papers from China. However, the growth rate is far smaller than for IEEE transactions.

What these data imply is of grave concern, and it is indicative of the presence of a number of issues faced by ICT community in Japan.

Given these circumstances, if we want to develop the English editions of IEICE transactions into representative transactions in the Asia Pacific Region, we need to further increase the number of good papers from China, Korea and other Asian countries which are not so far geographically. To achieve this, it is extremely important to maintain close relations with engineering societies, universities and other research organizations in China, Korea and other neighboring countries. Also required are consistent efforts to promote exchanges with them through symposiums and workshops, and via students from those countries who are studying in Japan. Although the impact factor is still a matter of debate, given the deplorable state of the Japanese position, we urgently need to make every effort to enhance the quality of papers on IEICE transactions if we want to receive excellent submissions.

As I once mentioned in the preface to an IEICE Journal, a long-term perspective is indispensable for the exchange with people in overseas countries. In this preface I also talked about Chinese and U.S. university students living together in a shared dormitory, in Nanjing, China. Later I hear that in China, they have exchange programs between Chinese and U.S. students early at the high school level as well, and that there exists a program that gives preference to highly competent Chinese high school students for enrollment in U.S. universities. I also mentioned in the preface that a JICA-supported program to promote collaboration with ASEAN countries, "AUN/SEED-Net\*" would be an excellent idea and that the IEICE should consider extending support for this program in some way. In pursuing international exchanges to deepen mutual understanding and form lasting friendships, it is desirable to eliminate the harmful effects of vertically segmented administration, promote liaison between similar programs, and support all programs impartially. While a long-term visit program for providing education to overseas

students is important, so is a short-term one. In fact, the latter is crucial in enabling as many foreign students as possible to visit and study in Japan. Also crucial is establishment of a proper environment for hosting both students and researchers from other countries. However, there are still many issues to be resolved. For example;

- Organizing contact points for international students
- Providing scholarships to international students for their study lives
- Setting up housing (promoting the exchange with Japanese students)
- Providing opportunities of employment in Japan, for international students (with transparent personnel evaluation)
- Creating a national atmosphere where international students feel welcome
- Providing support after students returned to their home countries.

Discussions on globalization of universities, triggered by a University of Tokyo proposal to shift the start of the university year from the traditional April to September, in order to facilitate enrollment by foreign students, should be extended from various viewpoints. As it transpired, the spring 2012 issue of the IEICE Communications Society Magazine (No.20) includes a minor feature entitled "Survival Notes in the Age of the Multi-cultural Society," with articles contributed by foreign researchers who have studied in Japan and now work on the business front-line. I read these articles with great interest. One of them proposes a "secret recipe for a cocktail" to survive in a globalized society. It instructs you to mix and shake 40 ml of spirit of challenge, 30 ml of diversity, and 30 ml of omni-directional cooperation. What a marvelous way of putting it! I wish that the IEICE could positively support the acceptance of a large number of excellent international students with this type of mindset to study in this country.

*Note\* IEICE Global Plaza no.2, 6 and 23 refers to AUN/SEED-Net, at [http://www.ieice.org/eng/global\\_plaza/](http://www.ieice.org/eng/global_plaza/)*

## Upcoming International Conferences

**ICIN2012-** IEICE Communications Soc., in Berlin, Germany, on October 8-17, 2012, <http://www.icin.biz/>

**APCC2012-** IEICE Communications Soc., in Jeju Island, Korea, on October 15-17, 2012, <http://apcc2012.org/main/>.

**ISITA2012-** IEICE Electronics Soc., in Hawaii, USA, on October 28-31, 2012, <http://www.isita.ieice.org/2012/>

**ISAP2012-** IEICE Communications Soc., in Nagoya, Japan, on October 29-November 2, 2012, <http://www.isap12.org/>

**APSITT2012-** IEICE Communications Soc., in Santiago and Valparaíso, Republic of Chile, on November 5-9, 2012, <http://www.ieice.org/cs/in/APSITT/2012>.

**ITST2012-** IEICE Communications Soc., in Taipei, Taiwan, on November 5-9, 2012, <http://www.itst2012.org/>

**IWSEC2012-** IEICE Engineering Sciences Soc., in Fukuoka, Japan, on November 7-9, 2012, <http://www.iwsec.org/2012/>

**ICPR2012-** IEICE Information Systems Soc., in Tsukuba, Japan, on November 11-15, 2012, <http://www.icpr2012.org/>

**Kaleidoscope2013** - IEICE, ITU, Kyoto University, et al, in Kyoto, Japan, on April 22-24, 2013, <http://www.itu.int/ITU-T/uni/kaleidoscope/2013/progcom.html>

**EMTS2013-** IEICE Electronics Soc., URSI Commission B, technical sponsorship by IEICE Communications Soc., in Hiroshima, Japan, on May 20-24, 2013, <http://ursi-emts2013.org/>

## Message from TFIPP Secretariat

This issue is delivered also by a free mail magazine "IEICE Global Plaza on Line" with updated news of interest for you. Please contact Prof.Takahashi, TFIPP (Task Force for International Policy and Planning) at [global@ieice.org](mailto:global@ieice.org), if you need. Back numbers are available in archives at [http://www.ieice.org/eng/global\\_plaza/index.html/](http://www.ieice.org/eng/global_plaza/index.html/).

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