

Summary Statement of the 15th EA-RTM Symposium on

“Digital Innovation”

held on October 12, 2011

at the Westin Chosun Beach Hotel in Pusan, Korea

The Chinese Academy of Engineering (CAE), the Engineering Academy of Japan (EAJ), and the National Academy of Engineering of Korea (NAEK) jointly held a symposium on “Digital Innovation” in Pusan, Korea on October 12, 2011 as part of their 15th East Asia Round Table Meeting (EA-RTM). The executives and members of the CAE, the EAJ, and the NAEK met each other. In addition to the members of the EA-RTM, respected engineers from Malaysia, Indonesia, and Thailand were invited to attend the event.

Digitization has become a key factor behind innovations in diverse product and service categories, and the process comes with both challenges and opportunities. Ongoing research is needed on how digitization progresses in East Asia generally and China, Japan and Korea in particular because the process is advancing most rapidly in these countries. In addition, studies should be made to predict how engineers must respond to a future world transformed by digitization.

The symposium focused on the ubiquity of digitization, highlighting the areas of mobile devices, service platforms, cloud computing, network environments and software. The event also illustrated how these changes have invigorated other industries by increasing efficiency and quality as well as by changing modern lifestyles.

Recommendations and a summary of the symposium follow:

Recommendations

1. East Asian countries should cooperate on promoting the innovations necessary for the digital environment and on technology standardization.
2. The three Engineering Academies will exert concerted efforts to support the broad application of digital technologies in academia, industry and government.
3. In order to nurture talented young engineers to be adept in the digital world, digital education in all engineering disciplines should be developed and employed extensively.
4. The private sector should proactively cooperate to realize such digitization goals with the support and involvement of East Asian and global governments to promote sustainable growth in East Asia.
5. Digital innovations in all areas of engineering are inevitable and will play an ever-larger role in the years to come
6. The three Engineering Academies will pursue human security and well-being by means of digital innovations.

Symposium Summaries

Session 1: Future Technology Trend in the Era of Web 3.0

1. In the smart era, companies delivered new values with useful content and service experience while using the devices. Building a content and service ecosystem is essential.
2. The ICT service, which uses sensors, multiple devices and a service platform, will support our daily life in the real world. As a pragmatic service platform approach, a Ubiquitous Service Platform Project was introduced.
3. Cloud computing is a new paradigm, which is not only a technical innovation but also progress beyond the Turing Machine in the sense of sharing, interaction and connective intelligence.

Session 2: Digital Innovation on IT and Software

1. Cyber-physical systems (CPSs) designed as a network of interacting elements with physical input will extend their application into social and personal domains, and two fundamental technologies such as architectural frameworks and codesign methodologies are important to the cyber-physical-social system (CPSS), which emphasizes the social aspect of innovation.
2. The R&D status of IMT-Advanced and WiBro-Advanced at the Electronics and Telecommunications Research Institute (ETRI) was addressed. The significant factors for the “big-bang” of mobile traffic were examined, and future traffic was forecast. LTE-Advanced is suggested for gearing up beyond 4G.
3. The past and future of Chinese industry modernization was discussed, and the technological aspects of industrial digital innovation such as product innovation, design process innovation, innovation in management and manufacturing service engineering innovation were described.

Session3: Digital Innovation on Fusion Technology

1. The environmental friendliness of the cement production process and its energy-efficient enhancement and emission deduction were addressed. Such improvements have been implemented at various stages of the overall process
2. A new paradigm shift was led in the MRI research field. An interesting question concerning the oriental view of the functions of the heart and brain as controllers of the emotional and logical behavior of human beings was answered with positive prospects for educational engineering
3. The eco-friendly technologies used in the ship-building industry and the digital innovations that have powered the Korean shipbuilding industries were outlined. Issues regarding hazardous material control and the human resources policies for these industry-leading companies were discussed.
4. Overall, the common theme of digital innovation in the areas of fusion technology was well presented by three speakers from different engineering fields. All of the presentations seemed to direct us to the idea that digital innovation in all areas of engineering is inevitable and will continue to play an increasingly larger role in the years ahead.

Issued by the EA-RTM Member Academies

The National Academy of Engineering of Korea (NAEK)

The Engineering Academy of Japan (EAJ)

The Chinese Academy of Engineering (CAE)