

November 2014

Reports on the Seventh Workshop for the New Energy Utilization and Sustainable Society Research Program: Professor Sharp lecturing in the workshop

Message from the Faculty

Thoughts on the Western “Vision”



OMG Japan held the Industrial Internet Symposium on Wednesday, October 29, 2014. At the symposium, information was exchanged on the Industrial Internet Consortium (hereafter referred to as “IIC”) of the US and the Industry 4.0 of Germany. The IIC and Industry 4.0 have indicated their future direction, in that they plan to accelerate the utilization of Internet of Things (IoT) in the manufacturing, supply chains, health care, energy, and transportation industries, thereby aspiring for a significant transformation by 2030.

When you read documents related to these topics, you will notice that all of them are based upon systems engineering and that Model-based Systems

Engineering (MBSE) is required because the systems that they target are extremely complex and large scale. At the INCOSE International Symposium 2014 held in July, a vision toward 2025 titled “INCOSE SE Vision 2025” was presented. This document is also available for those who are not INCOSE members and I strongly recommend you read it, as it clearly lays out their plan of developing new systems with a technological approach in order to maximize values for systems of systems in which the natural environment, communities, and economies interrelate with systems that they target. The role that systems engineering should play in realizing such a vision

is going to be considerably significant. It will play a role of informing policymakers of the need to introduce new systems. According to the lectures given at the above-mentioned symposium, a large-scale Dutch company which makes semiconductor manufacturing devices has already begun its preparation to move in the direction indicated by the Industry 4.0. It is going to be extremely important for so-called “product lifecycle management” to be integrated with upstream system development. In doing so, the existence of a “model” consistent with the substance of products will be crucial. My task would be to make sure that we will not be left behind the Western vision, as such.

Hidekazu Nishimura, Professor
Graduate School of System Design and Management

News

TOPIC
1

The Second Open KiDS: “Design Workshop for Innovation Generation”



The workshop

The second Open KiDS event, entitled “Design Workshop for Innovation Generation”, was held on Sunday, August 24, 2014. Participants first learned how to design

workshops with a view to generate innovations according to the method developed and organized by Keio SDM. Then they actually tried designing a workshop using the method, and implemented the workshop as facilitators. For many of them it was their first experience in which to “design a workshop for innovation generation”. More precisely, they learned how to design a workshop in the order of objective layer, methodology layer, and method layer based on workshop architecture using “system x design” thinking. Additionally, they also learned what sorts of things they should think about when

evaluating a workshop. Through the occasion, participants came to the realization that one can systematically design a workshop which utilizes diversity and builds on collective wisdom by actually designing and facilitating a workshop. They also realized that while designing a workshop is strongly related to facilitating a workshop, it is possible to isolate the two. It seems that participants also understood that they can utilize not only the style of the workshop but also the essences they felt through the workshop while carrying out activities as a team.

TOPIC 2

Social Design and Innovation in Regions

In fall 2014, Keio SDM began offering a new elective course, “Social Design and Innovation in Regions” by Mr. Yuya Nishimura (representative of an NPO called *Miratsuku*). To promote this new course, we held an extension lecture entitled, “Social Design and Innovation in Regions” on Tuesday, September 2, 2014. Mr. Yusuke Kakei (representative of issue+design), Mr.

Eisuke Tachikawa (CEO of NOSIGNER/designer), and Ms. Sayaka Watanabe (founder and CEO of re:terra) were invited as lecturers. Panel discussions, which were held after each person spoke, were facilitated by Dean Takashi Maeno. An additional extension lecture with Mr. Yusuke Kakei was held on Wednesday, October 8. Both extension lectures were constructive in facilitating

various discussions on a number of good practices concerning social design and local innovations.



Mr. Kakei lecturing

TOPIC 3

Keio SDM Extension Lecture: “Think Japan’s Social Design with an Eye Toward 2020”



Mr. Morishita from the Tokyo Organising Committee of the Olympic and Paralympic Games

The Social Design Center of the SDM Research Institute, together with the Ministry of Education, Culture, Sports, Science, and Technology (hereafter referred to as “MEXT”), held an extension lecture entitled, “Think Japan’s Social Design with an Eye Toward 2020”, as part of a course, “Innovative Design of Public Policy” on Monday, October 13, 2014. With an eye toward 2020 Tokyo Olympics and Paralympics, discussions have begun in various fields as to what sorts of “Olympics legacies” should be left in the minds of people after the Olympics.

In response to such a trend, this lecture attempted to take a panoramic view of such a movement and facilitated discussions among various stakeholders about Japan’s social design after 2020. The lecture was held on the Day of Sports, exactly 50 years after the 1964 Tokyo Olympics. The first session themed “Japan’s Vision for 2020” contained lectures and discussions facilitated by Lecturer Yoshinobu Soda. The lecturers were Mr. Taira Morishita, Director of the Tokyo Organising Committee of the Olympic and Paralympic Games; Ms. Tomoko Ikuta, Officer for Evaluation of the Policy Division in the Minister’s Secretariat’s office of MEXT; and Mr. Tatsuya Nakabushi, Executive Director of the Legacy Co-Creation Council at the Platinum Society Association. Each lecturer spoke about his/her own perspectives and exchanged ideas with the audience. In the second session, actual cases of working toward the legacies in

various fields were introduced from the perspectives of education, media firms, and ways of working. It also contained a panel discussion. The lecturers were Ms. Mika Kumahira, a chairperson of the Future Education Conference Committee; Mr. Hiroshi Nozawa, a producer of the Asahi Newspaper Media Laboratory; and Ms. Hiromi Fujii, Head of CSR Department of the NEC Corporation. Guest Professor Toshiyuki Yasui served as the facilitator. Roughly fifty people from the private sector, the public sector, universities, and NPOs took part in the future-looking lively discussions. The level of participants’ satisfaction was high.



The panel discussion held in the second session

TOPIC 4

Reports on the Seventh Workshop for the New Energy Utilization and Sustainable Society Research Program



Professor Sharp lecturing in the workshop

The Symbiotic Safety System Design Laboratory (represented by Hidekazu Nishimura) held the seventh workshop for the New Energy Utilization and Sustainable Society Research Program on Monday, October 20, 2014. Professor Basil Sharp from the University of Auckland Business School gave a lecture entitled, “New Zealand’s Approach to Renewable Energy.” Since the Great East Japan Earthquake in 2011,

the Symbiotic Safety System Design Laboratory has through its workshops been referring to New Zealand as a country known for great nature and extremely high level of environmental awareness. The country is said to be a leading country in terms of energy policy; it already supplies 70–80% of the country’s total energy with natural energy, including geothermal power, hydraulic power, wind power, solar power, and biomass. The country aims to further increase the figure to 90% by 2020. At this seventh workshop, Professor Sharp covered issues that Japan can use as a reference for the future in a manner easy to understand from the Business School’s perspective, such as: the national and regional policies, the operational status of the system for separating electrical power

production from power distribution and transmission, the bidding system for electricity prices, and the customers having choices of different electric companies. In addition, he also touched upon less operational topics, such as: the history and processes behind New Zealand’s energy policy, such as the country adopting legislation banning nuclear power for the first time in the world in the 1980s; risks that “renewable” may become “non-renewable”, apart from the advantages of renewable energy; and the relationship between land owners and regional policy. He raised complex issues that need to be considered as part of a social system. He attentively responded to the comments and questions enthusiastically raised from the floor. The workshop went over time and was extremely fruitful.

TOPIC 5

Keio SDM Holds *Ideathon*: G Space Future Design Project

Brainstorming by a team

Keio SDM, together with Future Sessions Inc. and the Center for Global Communications of the International University of Japan, held “*Ideathon* Utilizing Geographical Space Open Data to Address Regional Issues” at the Miyamae Ward Office in Kawasaki City on Monday, October 27, 2014. This

event is part of the project commissioned by the Ministry of Land, Infrastructure, Transport, and Tourism. It aims to use the collective wisdom of participants to generate ideas for addressing regional issues and improving their attractiveness, to embody such ideas by utilizing geographical space open data, and to design future society. It was attended by roughly 120 people, most of whom work and/or live in the ward. For the *ideathon*, participants were divided into two groups depending on their areas of interests. Ideas useful for improving the Miyamae Ward’s charms were discussed, applying the processes based on system thinking and design thinking. Of the ideas

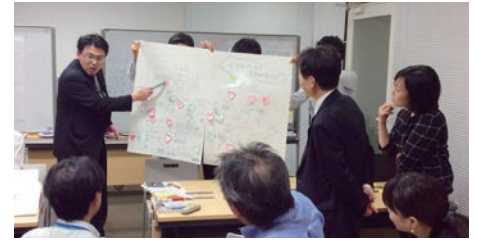
that were generated through the *ideathon*, 22 will be converted into prototypes for application services during a *hackathon*, which will be held at the Futagotamakawa Rise Catalyst BA on Saturday, December 20 and Sunday, December 21. It will be evaluated and further improved toward implementation at a *markethon* next February.



Presentation of ideas by a team

TOPIC 6

The First Half of the Project Design Camp



Training: Takahashi Head Coach (left), Toma Seminar Coordinator (middle), and the group presentation during the exercise (right)

This training course is offered every fall, with the sixth occurring this year. Its title was changed to “Project Design Camp to Put System x Design Thinking into Practice”, and the contents were further polished. The camp is composed of two sessions: each session lasts two nights and three days. The first session was held at the Collaboration Complex on Hiyoshi Campus from Tuesday, November 4 to Thursday, November 6, 2014. Twenty-five people attended the

course, which was the highest number ever, with the aim of learning the essence of project management. Participants belong to companies of various fields, such as trade, manufacturing, IT, transportation, plants, and steel. Their professions also varied, including technology-related, facility-related, legal, marketing, IT, PMO, and business administration. The participants mingled with one another during the lectures and group work that lasted until late in the night for the three days

of the first session. The training facilitated intra-industry interaction, providing participants with an opportunity to meet people from different fields that they do not normally meet at/for work. The second session, which is a three-day camp, is going to be held from Tuesday, December 2 to Thursday, December 4, 2014, and which will be reported in the SDM News next month.

TOPIC 7

NE Academy: Introduction to Model-based Systems Engineering

Professor Hidekazu Nishimura’s article, “NE Academy: Introduction to Model-based Systems Engineering (First Series), Running a project based

on a model is receiving attention in the aviation, automobiles and medical industries”, was published in the Nikkei Electronics Digital. The same article

appeared in the Nikkei Electronics 2014 10-27 (pages 90–99, No. 1146).

COLUMN

With an Eye toward an Easy Optical Transmission of Super High Resolution Video



The international conference: POF2014

An international conference on plastic optic fiber, POF2014 (<http://pof2014.org/>), was held at the Raiosha Building on the Hiyoshi Campus from Wednesday, October 8 to Friday, October 10, 2014. I served as a program chair of this conference, which was attended by roughly 120 researchers, technicians, and business people and ended on a high note. At this conference, there were 74 presentations on plastic optic fiber research development, from element technologies such as materials and devices to application technologies such as sensors and high-speed data communication. Among them, the presentation by the business and academia joint team led by the Keio Photonics Research Institute (Director: Professor Yasuhiro Koike of the Faculty of Science and Technology) about the easy connection system

for optic fiber transmission of super high-resolution video received much attention. Their demonstration booth also received many visitors. At the special session, NHK Science and Technology Research Laboratories, and Japan Display delivered special lectures, highlighting the need for high-resolution video transmission for the 2020 Tokyo Olympics, such as transforming TV transmissions to 4K/8K. Plastic optic fiber is strong when bent; thus, ordinary consumers will be able to use high-speed optic fiber communications if an easy connection becomes possible, which will lead to the advancement of medicine, such as remote diagnosis, and it can be widely used outside homes as well. I would like to continue devoting myself in order to respond to such expectations and ensure that such things are realized.

(Tetsuya Toma, Associate Professor)



Poster session



Demonstration of super high-resolution video transmission

Laboratory / Center profile

Sports Design Management Laboratory

Representative: Associate Professor Naohiko Kohtake

Members: Professor Testuro Ogi, Professor Kenichi Takano, Professor Shinichiro Haruyama, Lecturer Toshiaki Sakai (Lecturer at Institute of Physical Education / SDM Research Institute researcher), Researcher Daigo Horio, Researcher Akiko Suzuki, Miyako Tanaka-Oulevey Researcher (SDM Research Institute researchers), Master's and Doctoral students

The Sports Design Management Laboratory was established in November 2013 with the aim of realizing an education system which integrates academics and sports. We believe that such an education system brings out the best results both in terms of human resource development and improvement of physical/sports abilities, by repeating the cycle of “nurturing human resources through sports education” and “improving the physical and sports abilities of trainees through value co-creation education in which trainers and trainees work collaboratively.” The Sports Design Management Laboratory holds extension lectures and conducts research by collaborating with Keio University Institute of Physical Education and the Graduate School of Health Management of Keio University and is working toward the following three targets:

1. Establishing a method to systematically assess sports aptitude

We are working toward establishing a method, evaluation approaches, and indicators that enable us to systematically assess individuals' aptitude for sports, so that people can fully enjoy and be great at sports, even though they are not top athletes. To that end, we conduct demonstration experiments that utilize various sensors and big data.

2. Establishing a sports design method based on co-creation

We conduct study into a system in which “professionals and amateurs”, “enemies and supporters”, and “players and audience” can learn from one another, in order to nurture proactive thinking, flexibility of thinking, and motivation. For example, we design workshops to prove the effects of improving sports abilities, and the positive effects that sport has on one's comprehensive ability to live as an independent person. Effects are evaluated based on such experimental proofs.

3. Diversifying the opportunities for “Do, See, and Support”

We conduct research into a system which integrates sports with non-sports sectors/facilities with the aim of promoting positive evaluations of sport and its significance as a public resource, such as people enjoying moving their bodies, feeling the joy of accomplishing something that they could not do before, and the sensing the wonderfulness of fair play, regardless of age, handicaps, sports ability, and levels of interests.

Relevant article: Mitsubishi Electric Corporation's DSPACE “Enjoy, help one another, and upgrade your sports ability using quasi-zenith satellites!”

▶ http://www.mitsubishielectric.co.jp/me/dspace/column/c1411_2.html (in Japanese)



A session on “sports revolution through data science” with sports experts, such as from Adidas Japan



A special extension lecture on coping skills by Researcher Miyako Tanaka Oulevey

錦織圭 1989年12月29日生の24歳

年齢	16歳	17歳	18歳	19歳	20歳	21歳	22歳	23歳	24歳	25歳	26歳
11-30	100%	0%	100%	93%	78%	87%	41%	32%	34%	32%	29%
31-50	0%	100%	18%	46%	33%	32%	18%	14%	20%	10%	0%
51-100	0%	0%	4%	47%	32%	18%	11%	5%	1%	0%	0%
100-200	56%	32%	28%	17%	6%	1%	0%	0%	0%	0%	0%
200-500	33%	29%	13%	23歳の間に10位にランクインすることが重要							
500-700	28%			16歳の時点で10位へのランクインを現実的な長期目標として設定可能だった%							
700-900	28%	8%									
31-50	0%	100%	100%	80%	78%	68%	55%	56%	52%	45%	38%
51-100	0%	100%	100%	75%	71%	63%	44%	37%	23%	12%	9%
100-200	0%	100%	100%	60%	38%	20%	10%	4%	0%	0%	0%
200-500	81%	48%	28%	12%	2%	0%	0%	0%	0%	0%	0%
500-700	65%	39%	19%	5%	1%	0%	0%	0%	0%	0%	0%
700-900	40%	20%	8%	0%	0%	2%	0%	0%	0%	0%	0%

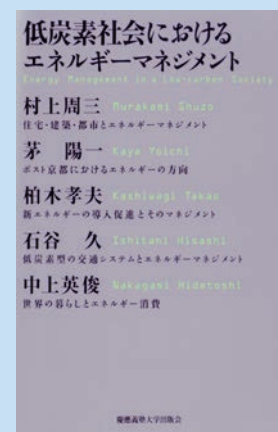
Researcher Toshiaki Sakai presenting an example of world-ranking tracking data regarding athletes' late-blooming abilities



Energy Management in Low Carbon Society

This book summarizes the lectures from SDM's special lecture series funded by Nikkei, “Energy Management in Low Carbon Society”, held for five consecutive weeks in October 2009. The special lecture series was organized by Keio SDM, with the cooperation of the Global COE Program, “the Center for Education and Research of Safe, Secure and Symbiotic System Design”. This book is a collection of scripts from the special lectures given by five famous energy management experts, which was made possible with the invaluable cooperation of Professor Toshiharu Ikaga of

the Faculty of Science and Technology. The book was published at a time when future visions for CO₂ reduction were under discussion and receiving attention, such as the post-Kyoto framework, at COP15 held in Copenhagen in December 2009. Although the attention placed on CO₂ reduction subsequently diminished after the Great East Japan Earthquake, the importance of energy management regained recognition due to power shortages following the earthquake. With such a second boom of the topic, this book has been receiving good reviews and more copies were printed.



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