



Reporting on the study abroad experience

Message from the Dean of Keio SDM and the Research Institute First Year of Management

Happy New Year! 2014 is going to be a year of “management” for Keio SDM. 2012 was a year of “design”, in which we focused on the Design Project and the Keio Innovative Design School (“KiDS”), while 2013 was a “system” year in which we focused on systems engineering and system thinking alongside Keio Systems School commencing its activities. This year, we will focus on SDM’s third keyword, “management.”

What do I mean by focusing on management?

One aim is to focus on education and research related to management. We have been carrying out educational and research activities concerning management in a number of ways and on topics like project management, organizational management, system management and management of innovative new projects. I would like to see these initiatives strengthened this academic year. As part of such an attempt, we would like to bolster the activities of the Management Design Center even further. We can do this by implementing different variations for the Project Management Training that we have been conducting, as well as by hosting symposiums. We hope to contribute to various fields that involve projects.

Another aim is to strengthen management of Keio SDM itself. We have been collaborating with one another to manage Keio SDM by capitalizing on the strengths of each faculty, students and staff, and we would like to further enhance our cooperation and collaborative creation this year. In other words, it is about creating synergy, not only by furthering the strengths of each person, but also by combining each person’s strength. It is how we manage “the future design of Keio SDM as a system.” While making the foundation of SDM stronger, each member can pursue the world’s leading education and research—I would like to see such kind of thing in the year of management. More specifically, we will endeavor to revitalize joint research among faculty members, to strengthen collaboration between classes by improving mutual understanding of main classes and to enhance cooperation for management activities. Your continued cooperation and guidance would therefore be greatly appreciated.



Takashi Maeno, Director, SDM Research Institute
Dean, Graduate School of System Design and Management

Keio SDM's Fifth Anniversary Event



Panel discussion with former students as panel members

Keio SDM was established in 2008, which saw the 150th anniversary of Keio University. “Keio SDM’s Fifth Anniversary Event” was held on Saturday January 11, 2014. Initially, it was planned for October 26, 2013; however, this was cancelled due to a large-scale typhoon. With strong demand coming from various stakeholders, the event was planned again and realized at the later date. It was a seven-hour event in three parts: the first part was a symposium, the second a special workshop dedicated to completed and current students, faculty and others who have been with Keio SDM since its foundation up to the present; the third part was a reception. The first part was conducted with much enthusiasm, with roughly 150 participants (100 internal and 50 external participants) filling the venue. As the number of confirmed participants greatly exceeded what was initially anticipated, the venue had to be changed to a larger location three days before the event. Despite this unexpected situation, current students who volunteered to work for the event was able to guide the crowd smoothly to the new venue.

The event was opened with a big chorus of “Happy birthday, dear SDM!” In the first half of the first part, former Dean and Professor Yoshiaki Ohkami, together with Dean and Professor Takashi Maeno, spoke enthusiastically about Keio

SDM’s path to date, as well as its future. In the latter half, a panel discussion was held with six former SDM students who led a heated discussion on the theme, “The past and the future of Keio SDM.” These former students (who are now actively working in the business and academic worlds) shared their thoughts about how what they learned at Keio SDM is proving useful in their work. Many animated comments filled the venue with laughter and inspiration throughout the discussion.

The second part, which was the workshop, was attended by more than fifty individuals; it was guided by Professor Maeno, Associate Professor Shirasaka and Guest Professor Yasui, who provided participants with the opportunity to reflect on the changes that have occurred in the Design Project over the course of six years, while introducing the latest Design Project to former students. The Design Project was a project-based active learning, venture that we created from the bottom up with partners from Stanford University and MIT in 2008, at the time Keio SDM was established. Keio SDM then took the project on and shaped it into a methodology, “Design Thinking x System Thinking.” Within two concentrated hours, we covered a range of topics, from the “correct” brainstorming method for creating innovations, an affinity diagram,



The event venue

Structural Shift Ideation, a Causal-Loop Diagram, leverage point identification, prototyping and finally to the sharing of images using clay and colored paper. Former Keio SDM students participated enthusiastically in the workshop and generated a number of unique ideas.

The third part, the reception, was organized in what we call the “Big Room”, where students normally socialize; the room was packed with roughly 100 current and former students, as well as faculty members, who interacted with one another in groups. Finally, we sang our song, *Wakakichi* (“young blood”), standing shoulder to shoulder. Participants left the reception after promising to see each other again, perhaps on Keio SDM’s sixth anniversary.



The event venue filled with roughly 150 internal and external participants

TOPIC 2

Open KiDS Special: “Workshop for Innovative Creation”



Workshop sessions

Following the third OpenKiDS workshop, which was held on Sunday November 10, 2013, we organized a special OpenKiDS on Sunday, November 17 and 24, 2013. At the third OpenKiDS, titled “Design Workshops for Innovative Creation”, participants first learned the method established by Keio SDM for designing workshops for innovative creation. Then, participants tried designing workshops by following the method and carrying out the workshop as facilitators. For many participants, it was their first experience in “designing workshops for innovative creation.” On November 17 and

24, participants experienced completely different types of workshops, where the intention was to expose them to various methods and workshop designs results. Participants who continued from the third OpenKiDS were given the opportunity to deepen their understanding of the intentions behind workshop designs, as explanations were provided on the thought processes that contribute to workshop designs. We intentionally assigned different faculty members for all three workshops; in this way, participants could experience how workshops might be influenced by facilitators.



TOPIC 3

Study Abroad Reporting Session



At the session

A study abroad reporting session was organized at the Hiyoshi Campus on Wednesday January 15, 2014. In welcoming the University of Cambridge (UK) and the University of Copenhagen (Denmark) as new partners this year, we had presentations from partner universities, including the Delft University

of Technology (Netherlands), ETH Zurich (Switzerland), Politecnico di Milano (Italy), Institut National des Sciences Appliquées de Toulouse (France), Purdue University (US) and MIT (US). Students from these universities, as well as Keio SDM students who had returned from studying abroad, shared their experiences

using poster presentations. Ms. Nozomi Sugiyama (second year Masters student), who studied abroad at the University of Copenhagen, spoke about her experience in Denmark, a country with the world’s highest standard of welfare. She pointed out numerous differences between Denmark and Japan, explaining that she became stronger as she overcame various differences. Ms. Aki Nakamoto (second year Masters student), who studied abroad at MIT in the US, joined the laboratory supervised by Professor Oli de Weck, where she took part in research for risk evaluations of insurance products that take into account natural disasters. The posters are currently displayed in the C3N15 classroom with the aim of sharing valuable study abroad experience with all Keio SDM students. In 2009, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) selected Keio SDM for the MEXT Global 30 Program; since then, we have been promoting international activities for almost five years. Through the reporting session, we were convinced of the benefits of broadening and deepening our international networks.

Laboratory / Center profile

Space System Laboratory

Representative: Associate Professor Naohiko Kohtake, Associate Professor Seiko Shirasaka, Professor Hidekazu Nishimura, Project Associate Professor Nobuaki Minato, Guest Associate Professor Hajime Yano, Executive Advisor of SDM Research Institute Yoshiaki Ohkami, Executive Advisor of SDM Research Institute Taketoshi Hibiya and others

The Space System Laboratory aims to address issues related to space systems by applying methodologies and methods based on systems thinking, design thinking and management thinking developed by Keio SDM. Our activities include research on design and development of spacecraft systems such as rockets, satellites and space stations; research for space system utilization, including collaboration with other systems; research for materializing each space system as a sustainable social infrastructure from business and policy perspectives. Many of our faculty members have professional experience in the space industry, both inside and outside Japan. Additionally, we have various business, government

and academic professionals conducting research, all of whom deal with space systems on a daily basis. Through discussion of these members, the laboratory produces results in various forms. Having members with such diverse expertise, the laboratory also focuses on various space-related educational activities. The laboratory welcomes international students and organizes lectures and seminars in which laboratory members collaborate with one another. We place importance on international coordination and promote exchange programs with MIT (US), Purdue University (US) and the Delft University of Technology (Netherlands) in pursuing various international coordination projects.

Examples of Research and Educational Projects

- **Research on Seaplane-type Horizontal Take-off and Landing Sub-orbital Space Vehicles With an Eye Toward Manned Space Flight (Leader: Ohkami)**

In pursuit of a concept for seaplane-type horizontal take-off and landing sub-orbital space vehicles that utilize topographical characteristics that are particular to Japan, we design demonstration experiments and business models with an eye toward realizing manned space flight.

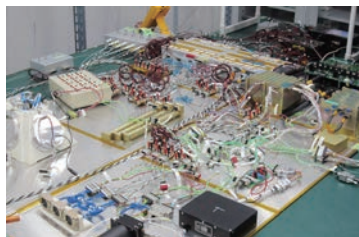
We plan to launch a joint experiment with Tokyo Institute of Technology and Tokyo University of Science.



Research on seaplane-type horizontal take-off and landing sub-orbital space vehicles

- **Research on Methodology for Developing Nano Satellites (Leader: Shirasaka)**

In collaboration with the University of Tokyo, Wakayama University and others, we are developing "Hodoyoshi" and "UNIFORM", which are 50kg class satellites. In this context, we are researching a methodology to develop new nano-satellites.



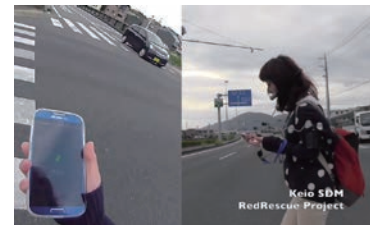
Research on methodology for developing nano satellites

- **Research on Thermophysical Measurement of Metallic Melt under Microgravity (Leader: Hibiya)**

In 2014, we plan to conduct an experiment involving thermophysical measurement of semiconductor melt by using an electromagnetic levitator loaded onto the European physiology module of the ISS.

- **Research on a Real-time Disaster Prevention Message Delivery System Using Quasi-Zenith Satellites (Leader: Kohtake)**

We are conducting research on a system that can provide disaster prevention information without relying on communication infrastructures on the ground by using terminals with an internal GPS receiver and Japanese quasi-zenith satellites. We are conducting verification across Japan as well as in Thailand and Indonesia, while pursuing international collaboration with European institutions.



Research on a real-time disaster prevention message delivery system

- **Research on Business System Design for Hypersonic Airliners (Leader: Minato)**

We are designing a sustainable business system with JAXA for the planned hypersonic transport service connecting Tokyo and Los Angeles in about two hours by creating business concepts, building economic evaluation models and running simulations.



Computer image of a hypersonic business airliner ©JAXA

- **Educational Research on System Design and Management concerning Spacecraft and Space Services**

By collaborating with various academic societies, companies and governmental institutions, we organize periodic educational events and workshops related to system design and management regarding the creation and management of spacecraft development and space services.

Related events:

Seminar organized by the Japan Society of Mechanical Engineers: "Systems Engineering in Space Development"

▶ <http://www.jsme.or.jp/event/detail.php?id=2652> (in Japanese)

Ideathon report on expanding use of quasi-zenith satellites

▶ <http://www.qzs.jp/events/131112/report.html> (in Japanese)



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