SDMI
System Design and Management
NEWS

October 2009

1st Project Leader Training Course Lecturers and participants

Message from the Director and Dean

Hidden support

There has been some good news recently in the form of a successful test flight for the HTV, an unmanned resupply vehicle that brings cargo to the International Space Station. The flight brought worldwide attention to Japan's technology strengths. Several factors were behind the success, including the high reliability of the reinforced H-IIB rocket, the technology to achieve launch in an extremely narrow time window, and close coordination with the NASA research center and other international institutions. Also key to the success were the orbital test of rendezvous docking performed in 1998 and the basic research that had been going forward for several years prior to that. I personally spent several years leading a team of veteran engineers that provided independent checks of the work of the HTV development team. What I want to emphasize is that the successful test flight garnered all the headlines and buzz, but behind it was an incredible amount of decidedly non-flashy basic research and background projects. The work and efforts of an enormous number of people went into the final product.

Yoshiaki Ohkami
Director, SDM Research Institute
Dean, Graduate School of System Design and Management

News

TOPIC 1

SDM Research Institute workshop on training the next generation of "super engineers"

On September 5, the institute hosted a debate on the next generation of "super engineers," which also provided an opportunity to discuss the Graduate School of System Design and Management (SDM)'s educational principles, the career paths open to students and the research taking place at the institute. On the program were presentations from Professor Yoshiaki Ohkami, Director of the SDM Research Institute ("Systems Design and Management that Fuses Arts and Sciences"), Professor Shoichi Sasaki ("The Future of Mobility Systems"), Professor Hidekazu Nishimura ("Model-Based Engineering"), Professor Tetsuro Ogi ("Digital Museum Using VR Technology") and Associate Professor Naohiko Kotake of the Keio Advanced Research Centers ("Satellite-based Seamless Indoor and Outdoor Positioning Information System"). During the panel discussion, workshop participants asked numerous questions about the next generation of mobility and model-based engineering, VR technology and the career paths of SDM students. As the discussion progressed, the outlines of the next generation of "super engineers" began to take shape.

TOPIC 2

1st Project Leader Training Course

For five days from September 14 to 18 the SDM Research Institute hosted an intensive course taught by Yoshiyuki Takahashi (advisor, JGC Project Services Co., Ltd.; part-time lecturer, Keio University), Kunihiko Furuya (professor, Faculty of Law, Kyushu International University) and Mitsugu Iwashita (director, the Intercultural and Business Communication Center). The photograph shows Professor Furuya delivering a lecture, but once the detailed explanation of the project tasks has been completed, students immediately broke up into collaborative groups to tackle the problems posed. The students themselves came from a wide range of backgrounds, and the 5-day intensive format brought a great deal of team spirit and tension that resulted in a successful class for all.

Lecture by Professor Iwashita

Lecture by Professor Furuya

Lab profile

Laboratory of Organizational Management
Professor Kenichi Takano
http://lab.sdm.keio.ac.jp/ogi/

Former principal research scientist, Central Research Institute of Electric Power Industry
Areas of expertise: Risk management and human factors in large technological systems
Publications (translations): "Managing the Risks of Organizational Accidents," "Managing Maintenance Error" (JUSE Press) etc. Extensive practical and consulting background in organizational safety, analysis of fundamental causes and other aspects of safety management.

1 Overview

Figure 1 contains a general overview of the lab's activities, which look at large complex systems, for example, energy production systems or petrochemical plants. The two primary focuses are: 1) creating organizational atmospheres and cultures that better suited to the operation of large, complex technical systems because they are healthier and therefore less susceptible to accidents and problems; and 2) improving the quality and operational reliability of the software and computer systems that control large technological systems. The first encompasses a broad range of policies and programs, including more effective governance and commitment all the way to the organization's management levels, as well as better teamwork and motivation at the employee and management levels. Below are some of the specific research themes currently being studied.

1. Research on cultivating a culture of safety that transforms organizations so they do not allow accidents and compliance problems to occur
2. Research on the development of safety management systems for large-scale plants that are designed to prevent accidents from occurring
3. Studies and research on the creation of organizational atmospheres and cultures that attempt to balance safety and performance
4. Studies and research on strategies to improve employee motivation and re-energize organizations
5. Studies and research on strategies to improve group dynamics and re-energize organizations
6. Research on software development and improvements in system operational reliability to ensure the soundness of large systems

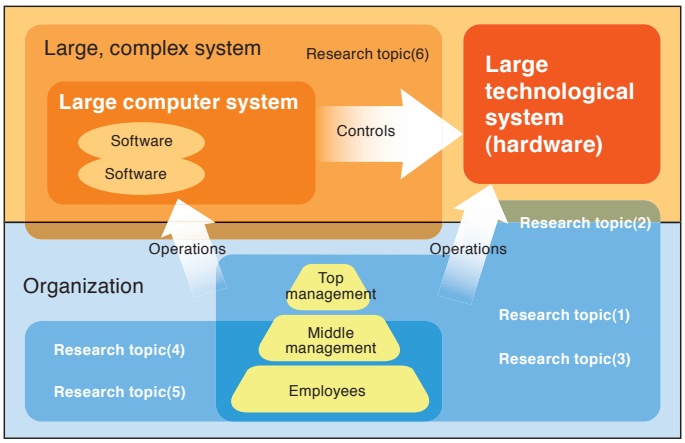

Figure 1. Research topic application domains and interrelationships

2 Collaboration with outside organizations

The lab currently enjoys collaborative relationships with the following organizations.

Japan Nuclear Technology Institute

Research into plant safety culture diagnostics for the nuclear power industry

Japan Society for Safety Engineering

(research consignment from the Ministry of Economy, Trade and Industry)

Research on security improvements for the petroleum refining industry

Chiyoda Advanced Solutions Corporation

Development and application of safety culture diagnostic techniques for operations in the chemicals industry

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