

Laboratory / Center profile

Strategic Systems Design Laboratory

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Strategic Systems Design Laboratory aims to realize large and complex systems in a strategic manner. By identifying feasible solutions and evaluation criteria, the Laboratory tackles diverse issues with a shared philosophy: seeking comprehensive optimum solutions. The Laboratory has already produced concrete results in some areas, such as personal identification related business and personnel

administration. It is now conducting research into program/project management for successful large-scale projects, space plane business strategy project, Space Situation Awareness (SSA) system, human-robot integration systems, and the mechanism of the human body. The Laboratory actively interacts with companies and overseas universities. It holds regular laboratory meeting every other Saturday.

Example of Educational Research Project

Program/Project Management for Successful Large-Scale Projects

In order for large-scale projects to succeed numerous challenges must be overcome, and the consequences of failure tend to be greater for large-scale projects. We pursue system design that enables large-scale projects to succeed by exploring the development of defense systems and large-scale public information systems.

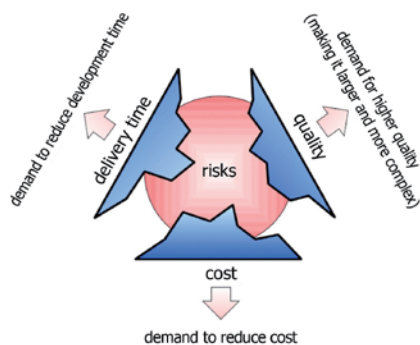


Figure 1: Risks associated with large-scale projects

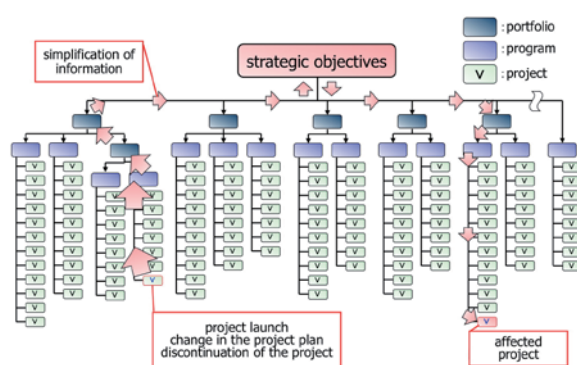


Figure 2: Strategic program management

National Security Strategy Project

This project aims to propose a new system for Japan's national security by evaluating its current strategy from various perspectives, such as culture, economy, society, technology, and defense. We are conducting research on the utilization of a space system for Exclusive Economic Zone (EEZ) surveillance and Space Situational Awareness (SSA).

Space Plane Business Strategy Project

This project studies large-scale systems from the perspective of space business by looking into complex issues, such as the technical challenges of manned sub-orbital spaceflight, Japan's geographical constraints, legal regulations, and profitability. The project aims to realize a space plane that takes off and lands horizontally using the system design method.



Figure 3: A prototype of a space plane with horizontal take-off and landing

Human-Robot Integration System Project

Many challenges remain before we can realize the co-existence and collaborative work of humans and robots at actual work sites. This project tackles difficult and urgent issues concerning the integration system of humans and robots in handling amorphous objects. We are also conducting research and development for a method which allows the application of robotic mechanisms to the analysis of humans' musculoskeletal system thereby systematizing and visualizing ergotherapy. Our joint research partners include Japanese companies and CARIS Laboratory of the University of British Columbia in Canada.

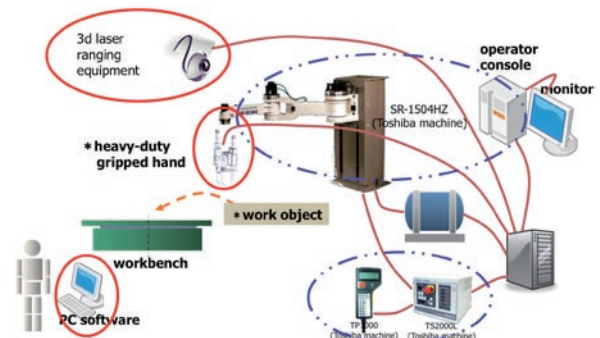


Figure 4: Human robot integration system project



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