# Research and Development that Creates New Value

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The Research & Development Headquarters of NTT Facilities is developing core technologies.

## Power supply system integration technologies

Power supply systems for IT (information technology) equipment must cope with unexpected commercial power failures. To meet this demand, we are developing technologies for diagnosing the soundness of batteries and enhancing maintenance efficiency. Other development topics include power-storage systems, small light-weight batteries as back-up power supply systems for IT equipment, and design technologies to avert the occurrence of oscillation phenomena.

## System operation upgrading technologies

Power-supply and air-conditioning facilities installed in about 7300 NTT-related buildings are monitored by the "ALICE" system. In April 2004, the system's fourth version was introduced to provide enhanced functions and create a full-time monitoring service from two sites: Tokyo and Osaka. SOPHIA is a power-supply business support system that effectively supports the management and maintenance of power-supply and air-conditioning facilities. This system assists in the preparation of proposals and timely renovation of facilities based on a maintenance history analysis.

## Environmental & energy-saving technologies

To cope with global warming and promote the formation of a recycling-oriented society, NTT Facilities carries out various development activities. These include making 'green design' tools for building design and environment-oriented construction specifications; making building automation systems featuring low environmental loads and programs for managing energy and water charges; developing energy-saving technologies for air-conditioning systems for IT equipment, outdoor-air cooling systems for offices, and charging controllers and batteries for effecting storage of natural energy from sunlight and wind, etc; and developing technologies for creating excellent wind-environments in neighborhoods.

## IT environment compatible technologies

Telecommunications buildings and data centers require high-grade anti-seismic, fireproof, crime-preventive, and waterproofing capabilities. They also need special air-conditioning systems for cooling IT equipment and special raised floor systems with excellent anti-seismic properties. To meet these demands, we are developing various systems and design methodologies for planning or renovating buildings that accommodate IT equipment.

## Facility management support technologies

In this stock-management age, enterprises seeking optimal operation of their assets need to maximize the value of their assets by investing appropriately and reducing operating costs. To meet these demands, NTT Facilities is developing facility management information infrastructure construction technologies, evaluation and diagnosis methodologies that support facility-related investment judgments, and various facility management business support systems for operating facilities effectively.

## IT solution creating technologies

NTT Facilities utilizes state-of-the-art IT to develop systems and design methods for facility management. For example, many CPUs (central processing units) scattered in buildings can be connected by a high-speed network to enable greater labor- and energy-saving than in conventional systems, and personnel entry control systems are being made compatible with new highly reliable identification methods. We are striving to increase our lineup of IT hyper packages that accompany highly reliable power and air-conditioning systems and high-grade anti-seismic features to safely accommodate IT equipment such as servers and routers.

The Research & Development Headquarters will continue to develop technology quickly to create engineering services with greater quality, efficiency, and added value.