

Low Carbon Asia Research Network (LoCARNet) 3rd Annual Meeting

Innovative and Integrative Monitoring System for Low Carbon Society

25 Nov 2014
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FUJITSU LIMITED

Agenda

- Fujitsu at a Glance
- Our capabilities of multi-scale monitoring
- Experiences of Environment Monitoring project in Saudi Arabia
- Toward Low Carbon Society in Indonesia

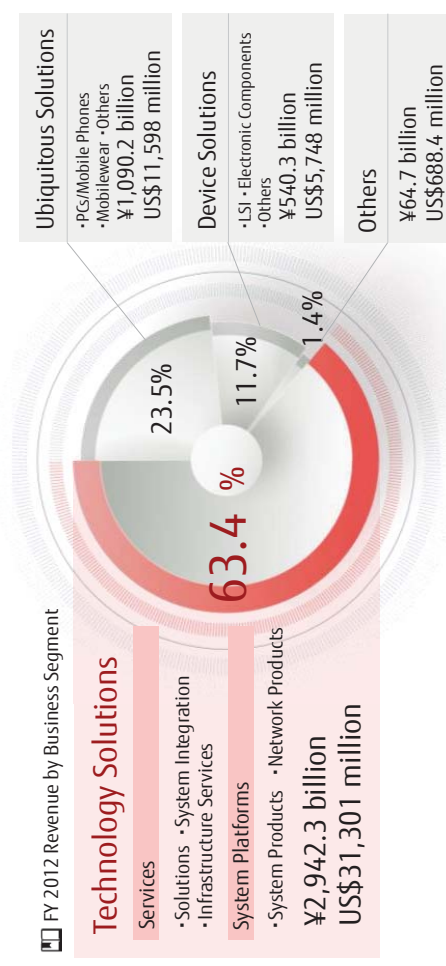
Fujitsu and its Business Structure

FY2012 Fujitsu at a glance

- Employees : 169,000 worldwide
- Net Sales : 4,381.7 billion yen (US\$46,614 million)
- R&D Expenditure : 231.0 billion yen (Approx. 5.3% of Sales)

Fujitsu at a Glance

FY 2012 Revenue by Business Segment



Note: Consolidated Net Sales by Business Segment, Including Intersegment Sales. Percentage breakdown for each segment is calculated as segment's net sales / (total consolidated net sales). US\$ = \$/yen, the approximate closing rate on March 31, 2013. FY 2012 is fiscal year ended March 31, 2013.

*TC: Technical Computing

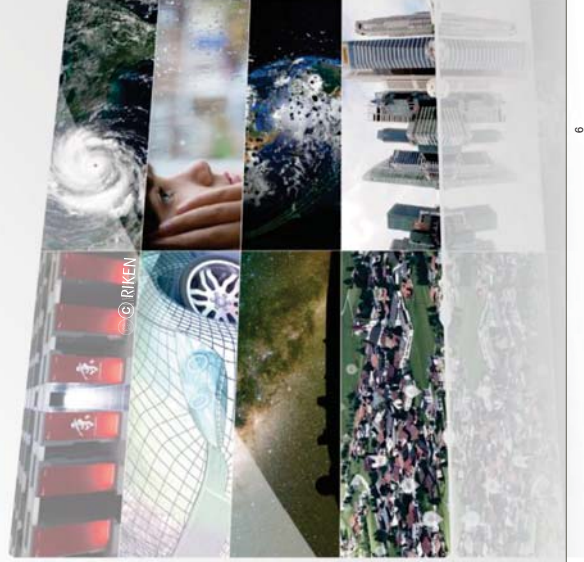


- Global Coverage: 100 Countries
- Over 100 Data Centers
- Call Centers in 31 Languages
- ◆ Data Center
- ◆ Major service center/ help desk
- ◆ Offshore center

Our capabilities of multi-scale monitoring

Fields in Technical Computing

- Supercomputing
- High Performance Computing
- Engineering
- Meteorology
- Astronomy
- Space
- Environment & Disaster Mitigation
- New Initiatives



Orbital Calculation ORBITER FORCE

Space

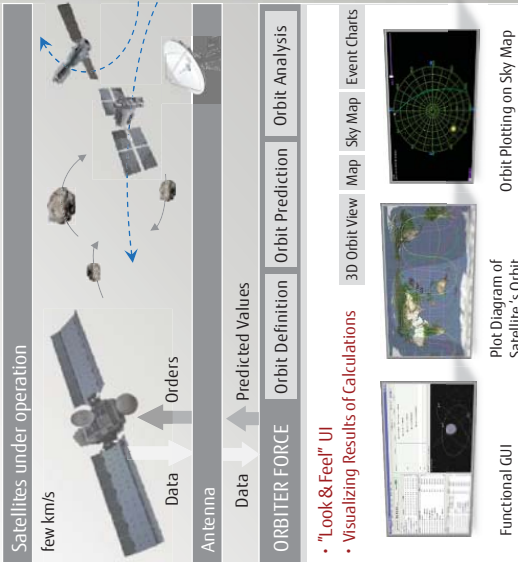
Outline

< ORBITER FORCE >
Packaged software that facilitates creation and analysis of orbital data required for satellite operation.

Contribution

Fujitsu provides this packaged software, ORBITER FORCE, -consisting of our orbit calculation technologies developed over the years.
ORBITER FORCE strongly supports industrial development/expansion using satellites

Providing reliable support for satellite operation with accurate orbit calculations



Software | ORBITER FORCE

Client | Academia & Private Sector Companies

Technology & Solution

- Provides packaged software with required capabilities for satellite operations, such as orbit definition, orbit prediction and orbit analysis.
- Brings accurate orbit calculations based on the algorithm used for satellites under operation, such as DAICHI and IBUKI.
- Reduces human errors with intuitive graphic display and user-friendly operation, achieving efficient satellite operations.

Space

Outline

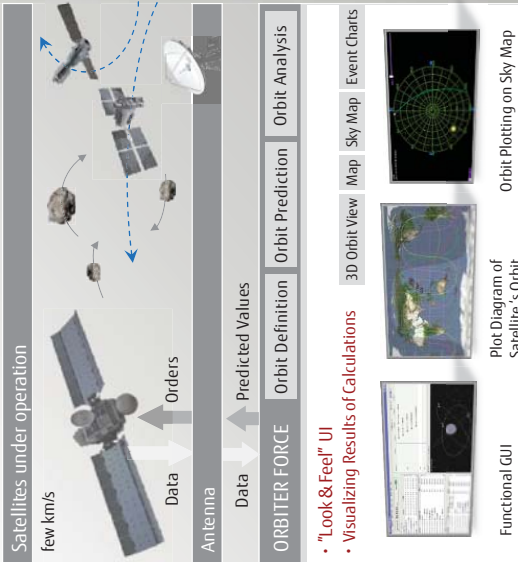
IBUKI: Greenhouse Gases Observational Satellite (GOSAT)

Contribution

Fujitsu has been supporting stable operations of IBUKI with our long-accumulated remote sensing technologies, aiming at global warming prevention and a low carbon society.



Providing reliable support for satellite operation with accurate orbit calculations



Software | ORBITER FORCE

Client | Academia & Private Sector Companies

Technology & Solution

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Remote Sensing from SPACE

Aiming at global warming prevention, a low carbon society, and making important contributions to a rich and comfortable life for all



Monitoring environments in cities

Environment Monitoring

Outline

Construction and operation of environmental monitoring systems in the primary industrial sites of Saudi Arabia.

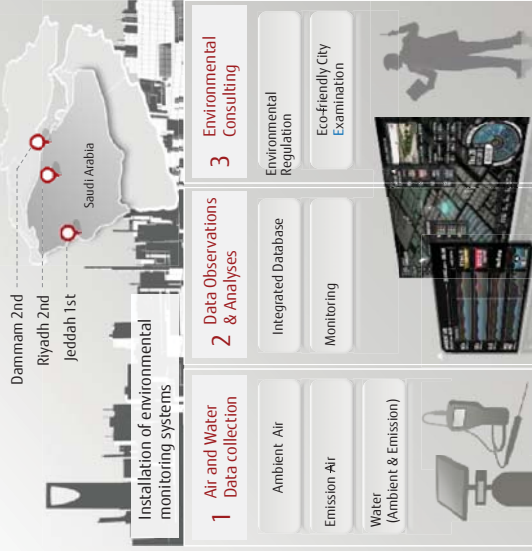
Contribution

In the primary industrial sites, Fujitsu has built an environmental monitoring system which constantly monitors air/water pollution. Moreover, we will contribute to environmental improvement by consulting the various data collected from this system.



Monitoring environments in cities

By improving the environment for industrial sites, and establishing a system for environmental conservation, we aim to bring an "Eco-Friendly City" into reality.



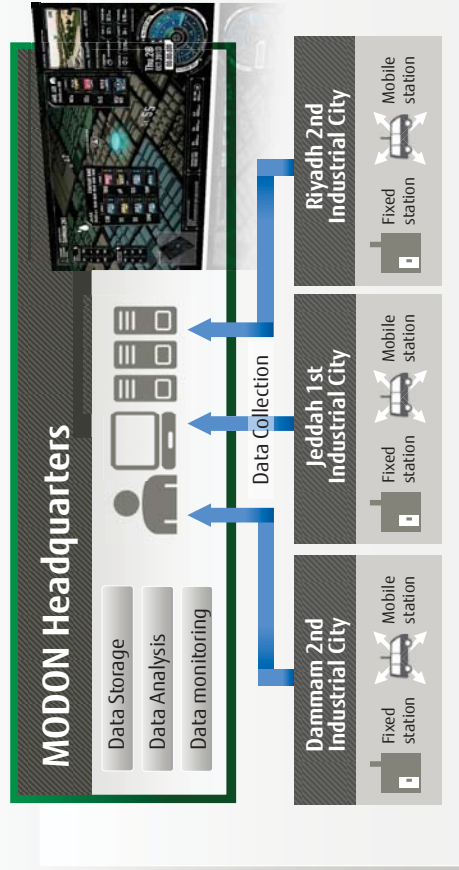
Project MEMS (MODON Environment Management System)
Client Saudi Industrial Property Authority (MODON)

Technology & Solution

- Centralized management of air/water observational data and the visualization of it using 3D maps provide effective, integrated monitoring services.
- Enables sequence of integrated operating processes which collect data, analyze it, and implement consultation based on the analyzed results.

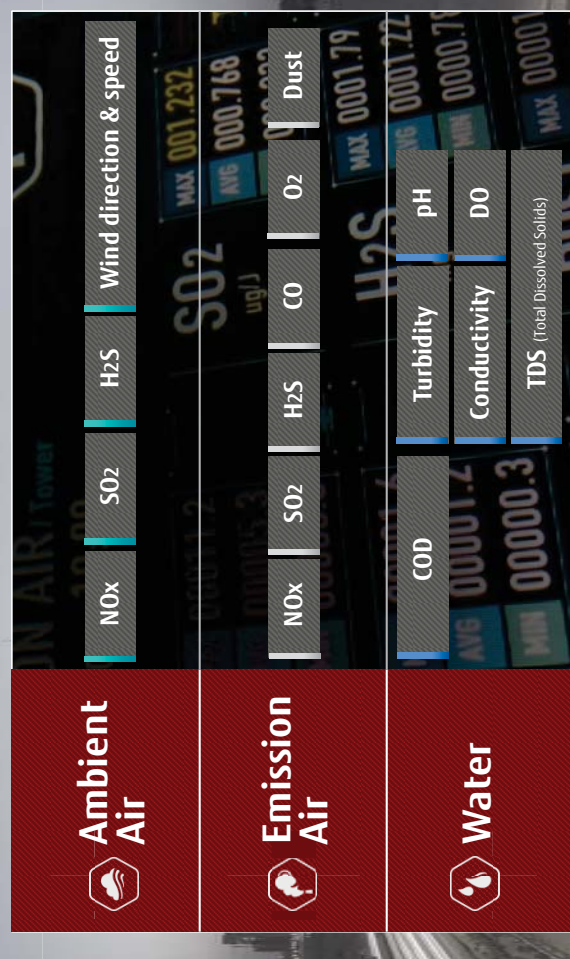
System Diagram

Environmental Management System Overview



Experiences of Environment Monitoring project in Saudi Arabia

Monitoring Properties





**International collaboration team
has made up the system.**



Toward Low Carbon Society in Indonesia

GREENAGES Core

P C

GREENAGES 3D Visualizer

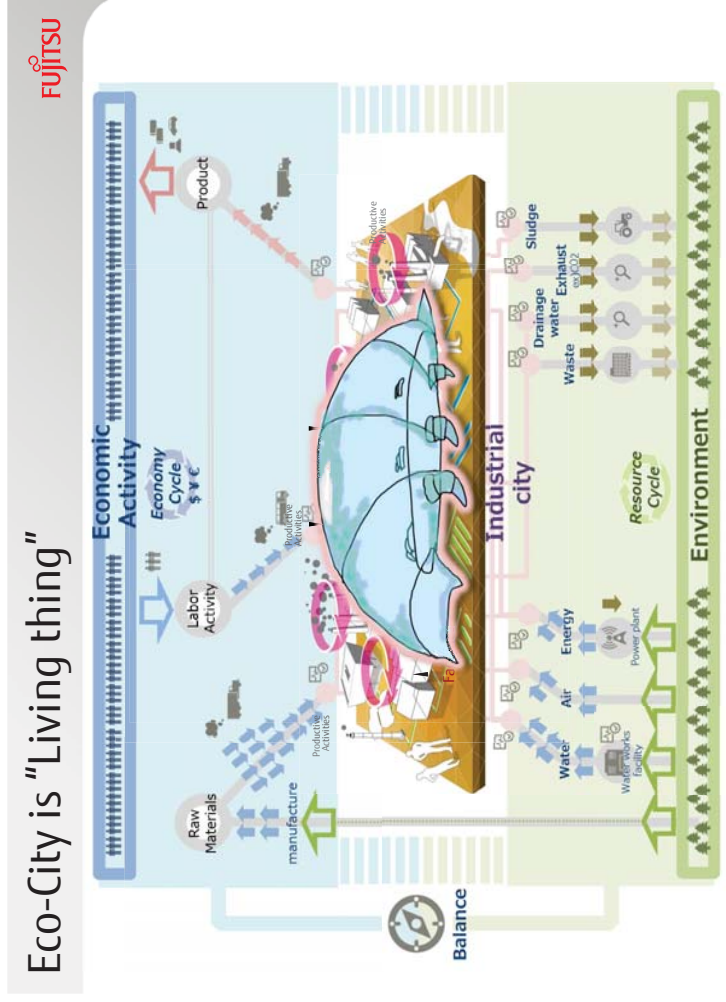
Monitor

**"GREENAGES Core" strongly supports the monitoring & managing of environments of each industrial estate.
"3D Visualizer" on large screen facilitates people's awareness and assessing of environments.**

**Visualization of the environmental data at
multilevel scale ranging is the effective
tools of thinking.**

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**International collaboration team
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Toward Low Carbon Society in Indonesia

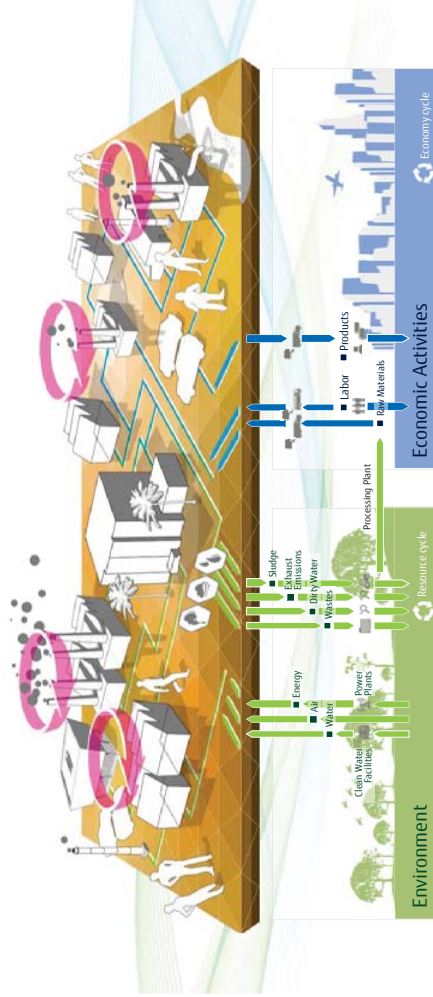
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Our Concept of Eco-City



By balancing economic activities with environmental impacts, cities will be sustainable.



Our R&D Efforts toward Eco-City



III. Environmental Management

Economic Model Simulation

Dashboard for decision making

Enterprise, Social organization

Collecting Reports using LOD on GIS tech. (LOD: Linked Open Data)

I. Monitoring the Environments

Measuring Air / Water

Identify the causes of emission

II. Monitoring Economic Activities

Monitoring Traffic / Human flow

Measuring Electricity

Environment

Economic Activities

Cutting-Edge Technology for "Shaping Tomorrow"



Real World

Human Society

The world we live in

1 Data collection

3 Data utilization

New knowledge

Future predictions

Virtual World

Application Solution

Platform Solution

Creating New Knowledge

Predicting the Future

2 Data processing

Analysis

Simulation

Past and Present Data



shaping tomorrow with you