Fujitsu’s Approach to Expanding Fields of ICT
~ Focusing on Big Data ~

Goro Kobayashi
Vice President, Convergence Services Business Unit
Strategic Planning Division
Fujitsu Limited
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Presentation Overview

1. Fujitsu’s Vision for Society

2. The Value in Your Data

3. Case Studies

4. Products Offered by Fujitsu
1. Fujitsu’s Vision for Society
Fujitsu’s Vision for Data Utilization

Close connection between the physical and virtual worlds

Physical world

Sensing
Capturing the physical world

Massive data collection

Virtual world

Navigation
Action in the physical world

Insight

Synthesis

Fujitsu’s Cloud Platform
The Impact of ICT on Customer Products

**Medicine**
- Electronic medical records & insurance claims
- Health information analysis

**Agriculture**
- Sales & distribution management
- Growing & picking better produce

**Manufacturing**
- Production control
- Usage analysis

Shift from information management systems to systems employed on-site

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New Business Areas for Fujitsu - Data - Fourth Pillar

Hardware

SI

Services

Data
Creating Applications in New Domains

Customer Business Domains

Existing domains

Operational data

New Products & Services
- Homes that promote healthy living
- Produce with high nutritional value
- ...

Synthesis

Sensing
- Social media
- Human activities
- Electricity usage
- ...

Big Data
Data utilization platform

Existing business systems
Businesses that Leverage Data

Two dimensions of enterprise data utilization

Level of data usage

Innovation
(Mid-long term, large scale)

Create new services

Modernization
(Short- to mid-long term)

Cross utilization

Enhancing business

Transforming business

Creating new business

Services Business

SI Business

Value to business

Internal data

External data

Improve accuracy, speed of current operations
- Transform processes
- Link to other systems

Expand business opportunities

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What is Big Data at Fujitsu?

In addition to general big data characteristics (the three "V"s), the fourth “V” (Value) is essential.

General Characteristics of Big Data (Three “V”s)

**Volume**
- Petabyte- and zettabyte-scale data

**Variety**
- Social media and other textual data, images, audio, sensor data, location data, log data, etc.

**Velocity**
- Real-time and streaming data

**Value**

Big Data at Fujitsu

Creating new value from a variety of data to improve competitive strengths
2. The Value in Your Data
What is a Curator?

Fujitsu launched data curation services in April 2012.

“Let Data Talk”

- Mutual relation/causal relationship
- Event patterns
- Parameter optimization
- Forecast simulations
- Dynamic optimization, etc.

Skillsets of Curator

**Modeling**
Mathematics, statistical, Financial Engineering, etc.

**Analytics**
Multivariable analysis, machine learning, etc.

**System Design**
Parallel Distributed Processing, CEP, etc.

In January 2011, Fujitsu established a curator organization that consists of BI/BA experts, consultants, and analytic algorithm researchers.
Approaches to Modeling & Analytics

By analyzing data from every direction without relying on preconceived ideas, it is possible to “make the data speak”

Conventional BI
Analysis based on hypothesis formed by operations specialist.
(hypothesis-verification approach)

Data Curation
Performing multi-faceted analysis of data to derive multiple goals.
(data-driven approach)
By adding another dimension, data can be categorized using planes.

When three pieces of data exist:

Data can be categorized using divider lines.

When four pieces of data exist:

Data cannot readily be categorized using divider lines.

By adding another dimension, data can be categorized using planes.
3. Case Studies
Case Study: Multifunction Printer Manufacturer

The company was able to analyze signs of errors and problems from massive volumes of sensing data gathered from multifunction printers, thereby enabling it to send customer service representatives to provide maintenance before the problems resulted in claims.

- Error notification
- Jam notification
- Alert notification
- Settings values
- No. of prints
- Printing jobs (color/mono, paper size, # pages, etc.)
- No. of consumables (toner, drums, etc.) used
- Temperature of each component (tens to hundreds)
- Current at each component (tens to hundreds)
- Voltage at each component (tens to hundreds)
- Operation of each component (tens to hundreds), etc.

Analysis

- Predicting the occurrence of specific errors, determining the conditions surrounding them

Data Utilization Platform Services (PaaS)

Maintenance performed before errors or problems occur

Curator

Service rep

Design & development

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By performing integrated analysis on various data, including subscriber usage history, external data, and location information, new value can be generated in the area of subscriber services.
Leveraging Store Shelf Video to Check Stock Status and Assist with Ordering

It is possible to determine shelf stock levels via image recognition technology, and appropriate alarms can be triggered using a variety of data, such as timetable and employee task data. This, in turn, can enable the development of a strategy leading to improved operational efficiency and increased sales (currently undergoing testing).

Store Shelves
- Shelf video
- Employee tasks
- Etc.

Data Utilization Platform Service
- Data collection
- Data analysis
  - Product sales performance
  - Shelf restocking frequency

Store clerk
- Promptly restocks shelf

Ordering staff
- Efficient ordering

The meat shelf is low on stock!

Little movement on meat shelf for several days

Triggers and sends alarm

Triggers and sends alarm
Fujitsu has developed indices from actual driving data and vehicle/driver information, based on which it is exploring new services (currently undergoing testing).

Services for individual customers:
- Eco-friendly driving evaluation
- Vehicle inspection advice
- Driving diagnostics

Alliances with other industries and businesses:
- Automobile insurance
- Car leasing
- Used car appraisal

Analysis / evaluation areas:
- Eco-friendly driving
- Vehicle malfunction forecasting
- Safe driving

Data collection

Data utilization study:
Designing data and analysis models that will be useful and effective in implementing new services.
Strengthening Business through Alliances

Press release from December 4, 2012:

Fujitsu Launches Big Data Service in Collaboration with Salesforce.com’s Force.com

Salesforce.com

Force.com

Platform for accelerating CRM and social media

• Easy to use
• High productivity

Fujitsu

Data Utilization Platform Service

Cloud service for leveraging big data

• Brings together all the technologies needed to use big data

Available Jan. 2013

Leverages the strengths of both companies’ PaaS to deliver data aggregation, analysis, prediction and visualization

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Case Study: Fujitsu and Salesforce.com Alliance

Salesforce.com (end users)

UI display
High productivity

Lifelog

Service data (e.g. Hada Memory, Karada Life, etc.)

Fujitsu Data Utilization Platform Service

Fujitsu data
Analysis
Logic
Logic

Salesforce.com data (subscriber info, etc.)

Current health information
Recommendations
Future predictions

Predictions
Recommendations

Salesforce.com (sales)

Dashboard
High productivity

Live chat

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4. Products Offered by Fujitsu
Overview of Fujitsu’s Convergence Services

Fujitsu’s convergence services consist of platforms, applications and personnel.

Customer products/services

Integration-based
- Customer develops applications, or...
- Customer app. development contracted to Fujitsu

Undergoing testing

Application/Services-based (SaaS)
- SPATIOWL Location information service
- Hada Memory Skin analysis service
- DataPlaza Social media analysis tool

Available

Data-based
- Data Curation Services

Available

Data Utilization Platform Service (PaaS)
Brings together all the technologies needed to process big data in real time and integrate, analyze and utilize it

Available

Cloud platform
- Networks
- Sensors, etc.
1. Brings together all the necessary technologies
   Complex event processing, parallel distributed processing, compressing/concealing, mesh maps, etc.

2. Employs heterogeneous data for multiple purposes
   Sensor data, business transaction logs, text, binary streams, etc.

3. Start small and use only what is needed
   Data volumes: Gigabytes to petabytes; Servers: Few to hundreds

The world’s first PaaS designed for big data
Data Utilization Platform Service
Delivering Social Infrastructure Information (SPATIOWL)

Gathers constantly changing road conditions in real time and provides information to area residents

- Collects movement/location data
- Records construction & regulatory information
  - Government worker
- Records road conditions on the spot via smartphone app
  - Gov’t worker
  - Resident
  - Volunteer
- Requests & complaints

Road Data Management System

- Probe info
- Regulatory info
- Weather info
- Disaster info
- Complaints/requests
- Social media
- Facilities info
- Spatial map

SPATIOWL Platform

Spatiotemporal database

Review passable / impassable roads and areas on a map.

- Make announcements to residents
- Support volunteer activities
- Company transportation planning
- Urban planning, reconstruction planning

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“Akisai” Family of Food and Agriculture Cloud Products

- Services enabling enterprise management style for agriculture, from farming to administration.
- Comprehensive system covering land use, greenhouse cultivation and animal husbandry.
- Innovation support service that supports systematic management practices in farms.

The name “Akisai” derives from the Japanese words for “autumn” and “coloring.”
New services combining heterogeneous data

The combination of heterogeneous data makes possible new forms of added value

- Usage model for heterogeneous data
- Tie-ups with different service providers for new mash-up services

Reexamining lifestyle habits for a healthier body

- Health visualization
- Advice

Accustomed to using

Increases opportunities for eating out

Vital information

Restaurant data/logs

Recommendations

Coupons
Hada Memory

A cloud service that uses skin images captured with a smartphone camera to measure spots, pores, and skin tone.

End user
- Photographs own skin
- Skin data

Service provider
- Android App
  - Color frame
  - Customize per Service Provider
    - Beauty advice
    - Product recommendations
    - Social contents

Measured results
- Service delivery
- Skin database

Fujitsu's Cloud Center

Service launched Nov. 2012
Fujitsu DataPlaza was conceived as a way to gather information on different kinds of businesses and categories to accelerate the flow of data. As an expert in the utilization of data, we are aiming to satisfy the needs of a wide range of customers and support service providers in offering more sophisticated services.
DataPlaza Social Media Analysis Tool

Collects and analyzes comments from social media services. Displays graphs of results from a variety of analytical methods, making them useful for business purposes.

- Available through the cloud (SaaS), making it easy to get started with social media analytics.
- Offers a wide range of functionality at a low cost.
- By combining business data with social media data, it is possible to generate new value.

**Advantages**

**Sample usage scenarios**

- Comparison w/competitors, opinion surveys
- Promotion surveys
- Consumer comments
- Trend watching, etc.

Launched Jan. 2013

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shaping tomorrow with you
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