FUJITSU

Fujitsu Technology and Service Vision

Customer Stories
Services, Products and Solutions

2015

shaping tomorrow with you

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Creating value through an open ecosystem

The approach of Human Centric Innovation is being implemented in industries and societies all over the world. These customer stories show how new values are being created in various sectors.

An Open Ecosystem towards a Hydrogen Society : Hydrogen Station Data Management Service

[**Toyota Motor Corporation** Case Study]

Human Centric Innovation

The introduction of fuel cell vehicles and hydrogen stations is an exciting development with the potential to make our environment cleaner and greener. To help make this technology widely available, Fujitsu has started a hydrogen station data management service. Toyota introduced this service to provide the information of the location and availability of hydrogen stations across Japan. It is a platform to enable an open ecosystem to form, which other car manufacturers and energy companies can join.

Introducing new fuel cell vehicles for a greener society

Our daily lives, business and society rely on the mass consumption of energy and natural resources, but as we know this can also be detrimental for the planet. Many measures are being taken to protect the environment and fuel cell vehicles (FCV) have now become the focus of attention. Using hydrogen as fuel, FCVs open up the possibility of zero carbon dioxide emissions in the future. However, in order for FCVs to be widely adopted, the hydrogen supply infrastructure - hydrogen fueling stations - has yet to be fully established.

Even though Japan is ahead of other countries in developing this infrastructure, hydrogen stations are still relatively uncommon compared to gas stations. Furthermore, it is difficult for drivers to know where to find them, as information is not widely available. To supplement the limited availability of fixed stations, mobile fuelling stations have been deployed, but these are even harder for drivers to locate. To make FCVs convenient enough to use, therefore requires drivers to have a simple and easy way to find out fuel stops. The solution to these issues requires a new collaborative effort across the automotive and energy industries.

Transcending industry boundaries and conventional wisdom

There are many issues to be overcome in order for FCVs to be widely adopted. First and foremost, drivers of FCVs should feel comfortable while driving by knowing that they can fuel hydrogen when needed. To overcome issues and help FCVs gain acceptance, Fujitsu has recently launched a hydrogen station data management service based on 'FUJITSU Intelligent Society Solution SPATIOWL'. SPATIOWL is a Fujitsu cloud service for location information management, providing insights from big amount of location information. It is equipped with multiple functional components including telematics*, probe traffic information systems, speech synthesis and personal protections. SPATIOWL can be used as an open platform as a service (Paas). This platform allows enterprises to rapidly develop their unique location information services. An open platform makes it easier for both the location service providers and users of the information to participate in the ecosystem. Hydrogen station data management services are expected to play a key role in extending the ecosystem to other car manufacturers and leading to greater adoption of FCVs.

In December 2014, Toyota released the Mirai, the world's first mass production FCV. The Toyota Mirai runs on the chemical reaction between hydrogen and oxygen in the air to generate electricity. In addition to the release of the Mirai, Toyota announced that they made about 5,680 of their own FCV-related patents, including patents under inspection, freely available to the public.

An open, cloud-based platform facilitates the participation in the ecosystem

Toyota has started a new service designed for the Mirai on Toyota's telematics service platform called T-Connect. The new service provides drivers of Mirai with useful data from SPATIOWL's hydrogen station data management service. Drivers can check the station information on one of two different apps. The first one is "Hydrogen Station List," installed on the navigation system on the Mirai. The Hydrogen Station List automatically extracts the three closest hydrogen stations to the vehicle and lists them on screen. The other is the Pocket Mirai app for smartphones. In addition to information regarding the remaining hydrogen in Mirai and possible mileage, Pocket Mirai provides information related to hydrogen stations in Japan in real time, including opening hours and location. This information from Hydrogen Station List and Pocket Mirai provides drivers with safety, security, comfort and convenience.

The Hydrogen Station Data Management Service also has a function for the hydrogen operators. They can register their hydrogen stations by tapping the map on a Web browser. SPATIOWL automatically calculates the longitude and the latitude on the map, and registers a station, which instantly appears on the Hydrogen Station List and Pocket Mirai. This feature allows hydrogen station operators to easily register and update hydrogen station information without setting up a new system.

Says Takako Yamada of Toyota's Telematics Business Department, e-Toyota Division, "With help from hydrogen suppliers and a new service from Fujitsu designed to our needs, we were able to launch the hydrogen station data management services at the same timing as the introduction of Mirai. We feel the service will increase convenience for Mirai drivers and we will continuously enhance the service by incorporating the feedback from our customers and other stakeholders."

Fujitsu is working on implementing new functionality such as a Web API for SPATIOWL so that hydrogen station operators can register their hydrogen stations automatically from the systems of hydrogen station operators. By making it much easier for companies to join the FCV ecosystem, Fujitsu contributes to making hydrogen a viable option.

The automotive, energy and ICT industries are working together, forming a new ecosystem. This ecosystem transcends the conventional boundaries of industry to help improve the environment.

Customer Profile

Toyota Motor Corporation
Address : Toyota City, Aichi Prefecture, Japan
Founded : 1937
Employees : 338,875 (consolidated)
URL : http://www.toyota-global.com/

*Telematics: The integrated use of telecommunications and informatics, for application in vehicles and with control of vehicles on the move.

Visualizing the Value Chain

[Airbus S.A.S.]

Human Centric Innovation

Airbus has taken a lead in the manufacturing sector in adopting RFID technology as part of its value chain visibility initiative, and seen enormous benefits to its business. By using Fujitsu's Automated Identification Technology (AIT) solution, Airbus is bringing the physical world of industrial processes and aircraft parts into the digital world, and helping streamline the full lifecycle from inhouse production to inservice operation of their aircraft, generating key business insights along the way.

"Smart technologies like RFID* can help us connect to our aircraft parts, and help create the Internet of Things for Airbus. This is where Fujitsu is helping us."
Carlo K. Nizam, Head of Value Chain Visibility and RFID

Traceability of the entire process

Building and servicing modern passenger aircraft is a complex, challenging and expensive business. Like any business, Airbus uses IT systems to help manage their manufacturing operations. However, getting data into these systems in the past has relied on using paper-based processes. The growing complexity of their operations means handling this data is becoming a more difficult challenge. Forty years ago Airbus was building ten aircraft per year. In 2015 they built 629. In the coming years it will approach one thousand. In 2012, Airbus was tracing 1.2 million parts every year. By 2017 they expect this number to rise to more than double in just five years.

Aircraft parts have life cycles that can run into decades, from design and manufacturing through to repair and disposal. Each part requires careful management. Safety and security are the top priority for the aviation industry. So traceability of the entire process is essential. Managing and tracking components is a complex challenge. Faults clearly cannot be tolerated and error-free maintenance is absolutely essential. Data builds up continuously through the lifetime of the aircraft.

Production also represents a challenge. Airbus has geographically dispersed production lines. An A380, for instance, is made up of sub-assemblies – nose, fuselage, wings, tailplane - in factories across France, Germany, Spain and the UK. With each finished aircraft coming with a list price tag of $428M, inventory is a significant cost to its business. An efficient supply chain is essential to their business.

Digitalizing its operations

In order to help address these challenges, Airbus began to digitalize its operations and RFID is an

important piece of the solution. Airbus is using radio-frequency identification (RFID) technology across the full lifecycle of its operations to provide real-time automated visibility, streamline processes and reduce waste. With regards to aircraft parts, the technology enables a range of information, such as part number, serial number, date of manufacture and even maintenance history, to be electronically and digitally attached to aircraft components.

Airbus's next-generation aircraft, the A350 XWB, is delivered with over 2,000 components fitted with RFID tags. Airbus has further extended permanent RFID part marking to traceable parts for all its aircraft families and in 2014 launched a project to replace conventional name plate attached to these parts produced in-house with an RFID enhanced name-plate as standard. As Carlo K. Nizam, puts it: "The way we look at it is that it's no different than an aircraft. In the late 80s we built the first fly-by-wire commercial aircraft with the A320. And what we're trying to do today is exactly that. We're trying to build a fly-by-wire value chain. A digitalized value chain."

RFID tags for aircraft parts must be robust. They need to be resilient to the harsh environments that an aircraft encounters but they also must be light. Fujitsu tags successfully met all the severe qualification criteria, and Airbus selected Fujitsu as a supplier for a 'RFID Integrated Label' as well as a RFID data encoding and printing solution. Fujitsu was chosen on the basis of its strengths in semiconductor technology, RFID design and manufacturing, and global delivery capability.

Increasing productivity and lower cycle times

To perform a manual check of seats and other traceable items and record the serial numbers and locations used to take hours of work. On top of this, the data had to be manually entered into a system and cross referenced for discrepancies. Using RFID, the same process takes minutes. The efficiency of on-site work is vastly improved and manual data entry errors are eliminated. Moreover, information can be shared and checked instantaneously. The value of the technology goes straight to the bottom line: aircraft can spend longer in the air.

Production has seen even greater benefits. By using RFID, components are managed and tracked through the production line. As the storage locations of all types of parts and their statuses are identifiable, inventory control of parts can be fine-tuned, leading to shorter lead times for parts supply and elimination of duplication in procurement. There are significantly less backlogs and unnecessary delays. The tangible benefits have been increased productivity and lower cycle times, meaning lower inventory and a better cash position. A better quality of data means fewer problems and errors in the assembly process. The technology is expected to reduce supply chain inventory costs alone by more than 20%. But the intangible benefits have been just as great. Airbus can now better visualize their supply chain, in real time. This information generates new insights, which further benefit the business. As Nizam observes, "Great things happen when things are connected. We can know what is where and when all automatically, in real-time and digitally."

Applying Fujitsu's RFID and Sensor Solutions to other industries

To promote the introduction of RFID to the aviation industry, a working group established by the Air Transport Association of America (ATA) has been leading initiatives to standardize RFID data format. Since joining this working group in 2007, Fujitsu has been involved in the collaborative process of establishing a RFID standard called ATA Spec 2000.

Fujitsu's RFID and Sensor Solutions are supporting the supply chain in the aviation industry. Fujitsu offers RFID tags and other AIT devices, readers corresponding to the RFID frequencies of various countries, and middleware for ensuring data integrity. Fujitsu is a one-stop source of the solutions covering everything from development of systems attuned to customer needs to maintenance operations. Fujitsu's global support underpins distributed information infrastructure. Based on its track record in the aviation industry, Fujitsu is cooperating with partners and customers in major industries worldwide, now offering RFID and Sensor Solutions to other Industries.

Customer Profile

Airbus S.A.S.
Address : Toulouse, France
Founded : 1970
Employees : 59,000
URL : http://www.airbus.com/

*RFID (Radio Frequency Identification): The non-contact use of radio-frequency electromagnetic fields to access, register, update and delete data. It can be used to automatically identify and track objects which have RFID tags attached.

Using Big Data for Continuous Improvement in the Production Line

[Omron Corporation]

Human Centric Innovation

Omron uses big data to help people find process improvements in the production of printed circuit boards. They have integrated log data produced from different points on their production line to visualize the end to end flow, enabling them to find problems and the root causes quickly and easily. As a result, their hourly productivity has improved by 30% in only a few months and the improvement in productivity still continues.

"The data surprised me when I first saw it. The solution revealed improvements I had been trying to find for a long time. It has given us reliable expectations to further improve our production line"
Shinji Mizuno, Manager
1st Production Section, Production Department,
Kusatsu Factory, Industrial Automation Company

In search of global growth

Omron Corporation is an electronics manufacturer of automation and healthcare products. In July 2011, Omron developed 'Value Generation 2020', its long-term management vision through 2020, and continues to challenge itself for growth to become a global player. Focusing on quality, safety and the environment, Omron supports manufacturing innovation globally with its unique sensing and control technologies. In particular, its control equipment and factory automation (FA) systems business has the number one market share (40%) in Japan and operates in 80 countries around the world; Europe, North America, China and the Asia Pacific. Omron also provides manufacturing solutions to its customers, solving the diverse management problems at their production sites. At the same time, it has invested continuously to improve efficiency in the production lines of its own factories using Omron's controlling technologies and products.

The quest for the next level of continuous improvement in production

Omron has always sought to improve production processes in the main factory of its Industry Automation Business in Kusatsu city, Japan. The production line of the printed circuit boards consists of four steps. The first step is preparing the circuit boards with soldering. In the next two steps, different electronic components are attached to the boards. And in the final step all components are permanently fixed in place to the board. The log data from each

device in the production line are stored in separate databases. Because the error logs from each machine are fragmented, identifying the root cause of a problem is difficult. Until recently, only experienced workers were able to check the error logs in the production and control systems to find the problems. And sometimes locating the root cause was beyond even these people, unable to see through the complex inter-relationships between different processes. Shinji Mizuno commented, "To realize the next level of continuous improvement, we need objective data."

The power of Big Data supports people for continuous improvement

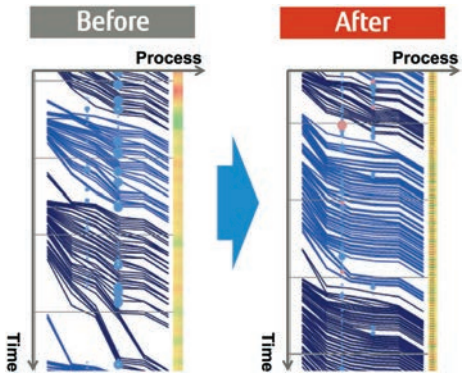
Omron partnered with Microsoft and Fujitsu to do a Proof of Concept (PoC) of the real-time visualization of the production flow by linking each circuit board manufactured in the production with the different types of data recorded by each production system on the manufacturing line. The main goal of this PoC is to identify areas for improvement which cannot be easily identified even by experienced workers.

According to Mr. Mizuno, "There should be further room for improvement." The system is designed to use Big Data to support people who work daily in the production line.

In order to collect log data in real time from each device in the production line, Microsoft SQL Server and Omron's Sysmac NJ-series Machine Automation Controller, which controls movement of each device and machine, were used together. Since September 2013, Fujitsu has been developing a system which produces a 'Timeline Data Visualization' report by which the actual data can be analyzed at a glance by each circuit board or by the production process. It displays the production status in greater detail than ever before, yet is simple enough for anyone to understand. The report produces a detailed graph of the production flow chronologically, allowing workers to identify clearly when and where the productivity decreases and to overlay with other data to find the root cause of the inefficiency.

Visualization leads to idea generation

Even non-experienced workers are able to analyze the production status of each individual circuit board, leading to a six times gain in the efficiency of problem tracking and production improvement. For example, now one worker can analyze the root cause of the complex issues, which previously required six or more experienced people onsite to analyze, freeing more time to focus on engineering or process design. Within a few months, hourly productivity was up 30%, and still increasing. The new system also



allows workers in different shifts to co-operate: workers can now view graphs of the production flow from the previous shifts and identify improvement points.

As the next step, Omron plans to map video data of the inspection process, combined with other data such as temperature, error log and quality data chronologically into one dashboard. This will be used by the manufacturing department as well as by the planning department for technology improvement and production and financial planning.

Omron and Fujitsu are considering promoting the jointly-developed system created at the production line in the Kusatsu Factory. One innovation in visualization leads to idea generation. This type of innovation chain is expected to be extended across enterprises and borders.

Customer Profile

Omron Corporation

Address : Shimogyo-ku, Kyoto City, Japan
Founded : 1948
Employees : 36,842 (consolidated)
URL : http://www.omron.com/

*Information as of March 2015

Human Centric Technologies at the Forefront of Retail Banking

[CaixaBank, S. A.]

Human Centric Innovation

CaixaBank decided to roll out over 8,500 new Automated Teller Machines (ATMs) across Spain aiming to increase customer satisfaction and decrease complaints. The bank partnered with Fujitsu to develop and maintain a new, user-friendly ATM platform that would incorporate customer recommendations. Particularly usability for older and disabled customers was enhanced. The new ATMs, by handling over 80% of all bank transactions, allow employees to concentrate their efforts on higher value tasks.

To the next level of services and efficiency

CaixaBank is Spain's leading financial group in both banking and insurance. It was founded in 1904 and started out with the management of family savings, offering its clients pension insurance a full century before this social benefit was established elsewhere. Today, it employs over 30,000 people in over 5,000 branches and has nearly 10,000 ATMs across the country, making it one of Europe's largest cashpoint network.

CaixaBank strives to lead the field when it comes to using technology to improve customer service and increase operational efficiency. Recently, the bank undertook an ambitious plan to refresh its entire Automated Teller Machine (ATM) estate with next generation machines.

"Our customers expect more functionality from ATMs; at the same time, automating more transactions relieves the burden within our branches allowing staff to focus on more added-value tasks," explains a CaixaBank spokesperson. "We wanted to develop a new cash machine that would improve the user experience and showcase innovation in the market."

For many years Fujitsu has manufactured CaixaBank ATM devices, making it the natural partner for this project. However, providing maintenance to ensure optimal availability was also a challenge.

"Previously, we agreed three year contracts with multiple suppliers to support our network of ATMs," adds a CaixaBank spokesperson. "In order to realize this vision, we decided that partnering with Fujitsu as sole supplier and maintenance provider for ten years would be the best route to success."

Human centric ATM designed by customers

For CaixaBank, the customer comes first, so it began the project with a series of focus groups and workshops involving members of the public to determine what features were required. Fujitsu then took these recommendations and designed a next-

generation ATM that would meet those needs and could be manufactured in its production facilities in Malaga.

"This is the first ATM designed by customers and, as such, is totally adapted to their specific requirements," says a CaixaBank spokesperson. "We took all their feedback and worked with Fujitsu to create a new ATM platform with the versatility, security and reliability demanded by the market."

The result is the 'Punt Groc' (Yellow Point) terminal, based on the Fujitsu ATM Series 100, which has a contactless card reader that allows secure transactions via compatible mobile and wearable devices, giving customers greater flexibility in how they pay for goods and services. It also incorporates automatic banknote recognition for forged notes, a simplified manual loading process and special features that enhance its usability for older or disabled users.

CaixaBank is now in the process of rolling out over 8,500 new ATMs across Spain, relying on Fujitsu's 400-strong team to handle the decommissioning of existing terminals and the installation of the new ATMs. Fujitsu is tied to a strict level of service that guarantees maximum uptime for all machines.

Human centric technologies bring new values

The new ATMs are delivering multiple benefits across the board – from added convenience for customers to ultra-reliability for the bank.

"The ATMs offer the best performance in the market in terms of downtime – we've seen operational availability rise from 95% to 98%, which means happier customers and fewer complaints to our directors," continues a CaixaBank spokesperson. "We've also increased the number of transactions performed at ATMs to 86% of the total across the bank and aim to hit 90% in the next year. That relieves the pressure on branch employees and frees them to concentrate on higher value tasks."

In addition, the added functionality is proving to be a success – using contactless cards, customers can withdraw money 30% faster, reducing queues and frustration. And the new terminals also benefit from the latest advances in accessibility in order to support older people, disabled users, or those who are unfamiliar with electronic devices. That's why the ATM solution for CaixaBank is equipped with tools offering an avatar using sign language, high-contrast screens, large text and buttons, screen reader and keyboard navigation.

"It's a customized, dynamic interface that adapts to different user profiles, making it 100% accessible for every customer," comments a CaixaBank spokesperson. "Our history as a bank is based on a social and

community commitment so ensuring that the elderly and disabled could make full use of the ATMs was a key concern."

The terminals also serve as a revenue generator from customers of other banks and tourists. The eye-catching design and intuitive, user-friendly interface make it popular for anyone who needs to withdraw money on the go: "We have the largest ATM network in Spain and many of which are in tourist destinations. Because our machines work 24/7, are visually appealing and easy to use, they attract repeat business from visitors, and we benefit from the minimal commission charge on foreign transactions," adds a CaixaBank spokesperson.

At the forefront of retail banking

CaixaBank has just begun its ten year partnership with Fujitsu and following the initial success of the 'Punt Groc' ATM is planning to deploy another 1,400 in 2015 alone. In terms of its reliability, flexibility and functionality, plus the related services available 24x7, the Fujitsu solution puts CaixaBank at the forefront of retail banking.

Customer Profile

CaixaBank, S. A.

Address: Barcelona, Spain
Founded: 1904
Employees: 33,598
URL: http://www.caixabank.com

Flexible Technology for Business Innovation and Competitive Advantage

[NTT DOCOMO, Inc.]

Human Centric Innovation

NTT DOCOMO, Japan's largest mobile network provider, transformed its customer data management system, 'ALADIN', which handles around 65 million customer contracts and related information. Fujitsu has worked with NTT DOCOMO to develop a robust system framework that enables flexible system upgrades without compromising their services. This framework has reduced the time for application upgrades by 30 to 70%. NTT DOCOMO now has an agile system that supports its business by quickly responding to customer needs in the fast paced mobile market.

"It surprised us how fast we could add new services and rapidly upgrade existing systems. The new solution enables us to respond to the actions of our competitors and developments in the market with agility. We are proud of a new system that will last for many years. "
Masanori Shikimi, Director of Information Systems

System upgrade for better services and growth

NTT DOCOMO is Japan's largest mobile network operator with around 65 million subscribers. DOCOMO is working towards its vision of creating a new communication culture, and introduced the world's first third generation (3G) mobile network services in 2001. Beginning with the DOCOMO iMode services, the company was a pioneer of the mobile internet market.

DOCOMO's ICT system is also one of the most advanced in terms of performance in Japan. Its customer data management system, ALADIN, is an example. The system connects the DOCOMO information centers with its shops all over Japan, controlling all procedures for contracting and sales, for example entering customer information and checking credit risks. Processing one of the biggest volumes of customer data in Japan, ALADIN also integrates and manages network usage statistics, tariff plans, and the application of discount services of each subscriber.

For many years, DOCOMO has worked hand-in-hand with Fujitsu to upgrade ALADIN, which is essential for expanding DOCOMO's business and services. The two companies embarked on a project to develop the second generation of ALADIN in 2006. In the same year, a new regulation was introduced in Japan, allowing mobile phone users to switch providers much more easily. The ALADIN system had to be transformed to meet this new challenge.

Over time, large systems become more complicated, and ALADIN was no exception. Repeated upgrades and changes had left the system applications bloated and made further upgrades more difficult.

There are normally four major service releases per year to introduce new services. Each of these took four months from design through development and testing. Even a minor service release between the major releases took over two months to produce. ALADIN could not keep pace with the speed of DOCOMO's business needs, becoming a bottleneck for growth.

A flexible, robust framework for business agility

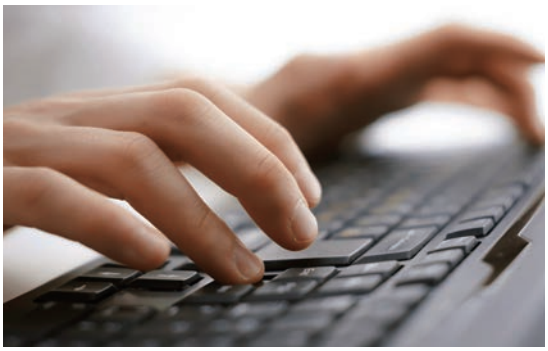
The target of ALADIN transformation was to halve the time and costs for new service releases. In order to reduce the testing time, it was crucial to identify clearly which elements within ALADIN would be affected by the system upgrade. It was also required to maintain the structural integrity of the application despite the repeated upgrades. To respond to these two challenges, DOCOMO collaborated with Fujitsu to jointly develop a new foundational framework for ALADIN, named 'xFramework'.

xFramework has two main features. First, it can adapt to changes flexibly. xFramework places the business layer as the core, comprised of Business Process Management (BPM)* and Business Rule Management System (BRMS)* functions. Any newly developed business flows and rules are reflected to the program in the business layer. This enables new functions for new services to be implemented in ALADIN with quick turnarounds. Second, xFramework is highly robust, built on logical data objects. DOCOMO defined a structured data object of all the information, such as a tariff plan and a model of mobile phones, in ways it is linked to each subscriber's phone number. ALADIN designers and developers use this data object to maintain application integrity under repeated system upgrades.

Removing the bottleneck and building on success

After the introduction of the second generation of the ALADIN system, unnecessary program development and testing were eliminated, because information from the system upgrade clearly shows where to change in the application structure. As a result the development time for major service releases was reduced by 30% and finished within three months. Simultaneously, the time required for minor releases was cut by 60 to 70% to just three weeks. In June 2014, DOCOMO introduced two new tariff plans: one was the first flat rate plan for voice calls, and the other was the shared mobile data plan for families. The new ALADIN system enables DOCOMO to release attractive plans first to market prior to the competition.

While the total development workload decreased



by 40%, the company has become able to respond to 50% more demands for functional upgrades, resulting in a 2.5 times productivity improvement. The productivity gains mean that DOCOMO can now finish updates to the ALADIN system faster than many other activities associated with the launch of a new service, such as staff training or brochure creation. The ALADIN system is no longer a bottleneck. It is transformed to support the business with agility.

Leverage the success of ALADIN

DOCOMO continues to improve ALADIN to meet the demands for new tariff plans and new services tailored to customer lifestyles. The possibilities of mobile services are unlimited. DOCOMO continues to develop new services, including the dMarket cloud service for their smartphone and PC users. xFramework has also been applied to these services as well. DOCOMO is expanding the scope of business, transforming itself from a mobile network operator to an integrated service provider.

Customer Profile

NTT DOCOMO, Inc.

Address : Chiyoda-ku, Tokyo, Japan
Founded : 1991
Employees : 24,860 (consolidated)
URL : http://www.nttdocomo.co.jp/english/

*BPM: Business Process Management. Reviewing multiple business processes and systems then optimize them through integrating, controlling and automating the processes.
*BRMS: Business Rule Management System. A computer system that automates complex business decisions based on a combination of business rules.

Empowering Customers and Employees to a More Human Centric Shopping Experience

[Group Auchan SA]

Human Centric Innovation

Auchan wanted to introduce more choice to customers while also reducing the length of queues at its checkouts. At the same time, it wanted to improve the employee experience on the shop floor. Three new self-service tools from Fujitsu empower customers to design their own shopping experience and make employees of Auchan more cheerful and approachable. This has enhanced the relational dimension between Auchan and its customers.

"Fujitsu helped us to work on our checkout waiting times and flow. Auchan wanted to offer its customers choice, both on the shelves and at the checkout. The new concepts, developed in partnership with Fujitsu, have enhanced the experience for our customers and made the sales process more flexible, whilst also improving working conditions for our employees."
Anne Bonjour, National Checkout Director

Offering its customers the widest possible choice

The Auchan group is made up of five independent and additional companies. It employs over 330,000 people in 16 countries and has a turnover of €62.1 billion. The company has subsidiaries in France, Italy, India, Spain, Portugal, Luxembourg, Poland, Hungary, Russia, China, Taiwan, Romania and the Ukraine. In 2014, Auchan had over 1,700 integrated supermarkets and hypermarkets.

Auchan's strength lies in offering its customers the widest possible choice, particularly on the shelves. In order to take this approach further, the company recently explored a new avenue by offering its customers innovative checkout concepts. This strategy was regarded as decisive in improving the experience for customers and employees.

"We wanted to reduce waiting times at checkouts and offer customers access to new concepts. Riding the wave of the democratization of new technology,

we felt it was crucial for us to integrate these concepts into the shopping experience. As a company, it is essential that we offer choice in terms of products and services, which is a real competitive advantage," explains Anne Bonjour, National Checkout Director.

Auchan has been working with Fujitsu for over 20 years and regards this relationship as a partnership based on trust and innovation. Fujitsu was therefore the obvious choice for Auchan to introduce new technology within the group.

"Together we developed an integration strategy for new concepts which would transform the way our customers shop," adds Anne Bonjour.

Installing three new checkout concepts

Auchan took an innovative approach by installing three new checkout concepts, designed in partnership with Fujitsu, which allow customers to scan and pay for their items independently. "Rapid Auchan" is a handheld scanner system which allows customers to scan their purchases while walking around the store. "Caisse Minute" is a self-service checkout system designed for customers with baskets.

Even more innovative, "Chariot Express" (Fujitsu's U-Reverse solution) is the first hybrid checkout solution which allows Auchan to rapidly switch from self-service checkout mode to traditional cashier-operated checkout mode in order to reduce queues, thereby adapting to suit store activity.

"Fujitsu helped us to work on our checkout waiting times and flow," explains Anne Bonjour. "The new concepts, developed in partnership with Fujitsu, have enhanced the experience for our customers and made the sales process more flexible, whilst also improving working conditions for our employees."

The deployment of these concepts now takes place on the stores' initiative: gradually in the first instance and a real acceleration has been observed in recent years.

Transforming the in-store experience for customers and employees.

The implementation of these self-service concepts has been successful, with 35% of customers now choosing a self-service concept to make their purchases. As a result, queues are smaller at the traditional checkouts, thereby improving the experience for customers and employees.

"Auchan has transformed the cashier's role into a more relational and diverse role and has reduced the tiresome nature of their work by limiting their handling of items and money, which is a stress factor."

Studies show that, following the implementation of these new checkout solutions, customers now find

staff more cheerful and approachable.

Thanks to its international coverage, Fujitsu can assist Auchan with the implementation of these new concepts throughout Europe. "We hope to carry on with this process, continuing to deploy these new concepts in our stores," states Anne Bonjour.

With Fujitsu's support, Auchan has transformed the in-store experience for customers and employees. Customers now have the choice of a wide range of services to improve their shopping experience and reduce waiting times.

"We are constantly seeking innovative solutions and Fujitsu's involvement has always been very strong in this regard. It has been a trusted partner for over 20 years, thanks to its technology expertise."
Anne Bonjour, National Checkout Director

Customer Profile

Group Auchan SA

Address : Croix, France
Founded : 1961
Employees : over 330,000
URL : http://www.groupe-auchan.com/en/

Cross-Industrial Convergence for Innovations in Marketing

[Dentsu, Inc.]

Human Centric Innovation

Dentsu and Fujitsu commenced collaboration to help customers use the power of Big Data in marketing. The partnership aims to enable enterprises to better understand individual consumers in order to transform their marketing processes in the increasingly complex and diversified market. Dentsu and Fujitsu began providing a consulting framework to help maximize customer experience* and establish an effective marketing approach. The collaboration has already assisted many companies, including Shizuoka Gas, in realizing marketing innovations.

Collaborate to maximize the potential of Big Data

Dentsu, Inc. is the world's largest advertising agency and the longstanding leader of the Japanese advertising market. The Dentsu Group is the fifth largest communication group worldwide. In recent years, the company has expanded the scope of its business beyond just advertising. It now supports end-to-end marketing activities for its customers in various industries. For this, Dentsu provides marketing solutions, helping them transform their businesses through establishing communication channels and sustainable engagement processes with consumers.

Today, behaviors of consumers are increasingly becoming more granular. It means businesses have to deal with more diverse data and channels. To maximize value in the changing environments, enterprises must better understand consumers and take effective marketing approaches. The analysis of data from a wide variety of channels is an indispensable tool.

In May 2013, Dentsu and Fujitsu began collaborating on helping their customers use Big Data and transform marketing activities. In many enterprises, information systems departments look after their core and front-end IT systems, while marketing departments are responsible for marketing strategies and promotions. It is crucial that these two functions work cohesively. Leveraging respective strengths in marketing and IT, Dentsu and Fujitsu aim to enable businesses to realize marketing transformation based on deeper understanding of individual consumers. Mr. Gosuke Kato, Director of the Dentsu Business Creation Center, Business Production II Dept., says, "By combining our marketing solutions with Fujitsu's Big Data analysis technologies, we can improve the experiences of our customers' customers and create innovations in marketing."

Jointly developed a framework to quickly understand buying intentions

The cross-industrial partnership, leveraging Dentsu's marketing design knowledge and Fujitsu's IT expertise, has been accepted by many enterprises in a variety of industries including utilities, automobiles, retail and finance. In November 2014, Dentsu and Fujitsu began to provide a consulting framework, bringing together the knowledge and experience developed from various collaborative projects.

This consulting framework begins with analyzing the business data from various departments whithin the enterprise as well as other open data by Fujitsu's Big Data analytics technologies. The results of the analysis are interpreted by Dentsu's panel data*, producing effective engagement approaches to maximize customer experience.

A salient feature of this framework is to provide support for the end-to-end marketing process. It starts from understanding individual consumer's lifestyles, preferences and buying cycle, planning the most effective initiative, through to executing the plan and getting feedbacks for further improvement. The framework also allows enterprises to identify a right approach to potential customers who might be overlooked.

Shizuoka Gas wins praise for its marketing innovations

Shizuoka Gas Company, Ltd. used this framework to deliver innovation in marketing. The Japanese government plans to deregulate retail sales of household electricity in April 2016, followed by household gas in 2017. It is expected that incumbent players such as Shizuoka Gas will face tough competition against new entrants from other industries.

To cope with this challenge, Shizuoka Gas embarked on marketing activities that leverage Big Data. The goal is to understand needs of their customers so that the company can enable them to enjoy 'richer and more comfortable lives'. Shizuoka Gas selected Dentsu and Fujitsu as partners that can provide end-to-end marketing solutions using Big Data.

Through the project, Shizuoka Gas was able to grasp the profiles representing its around 138,000 existing customers, as well as their needs and purchasing cycles for the renovation of their houses. With this understanding of its individual customers, the company has taken a new approach according to the marketing process. Mr. Takaaki Sato, the Manager of ICT Promotion, Business Development Department at Shizuoka Gas, commented, "The framework

allowed us to change our direction from a mass marketing approach to a customer-centric marketing based on the profile of individual customers we produced from the data."

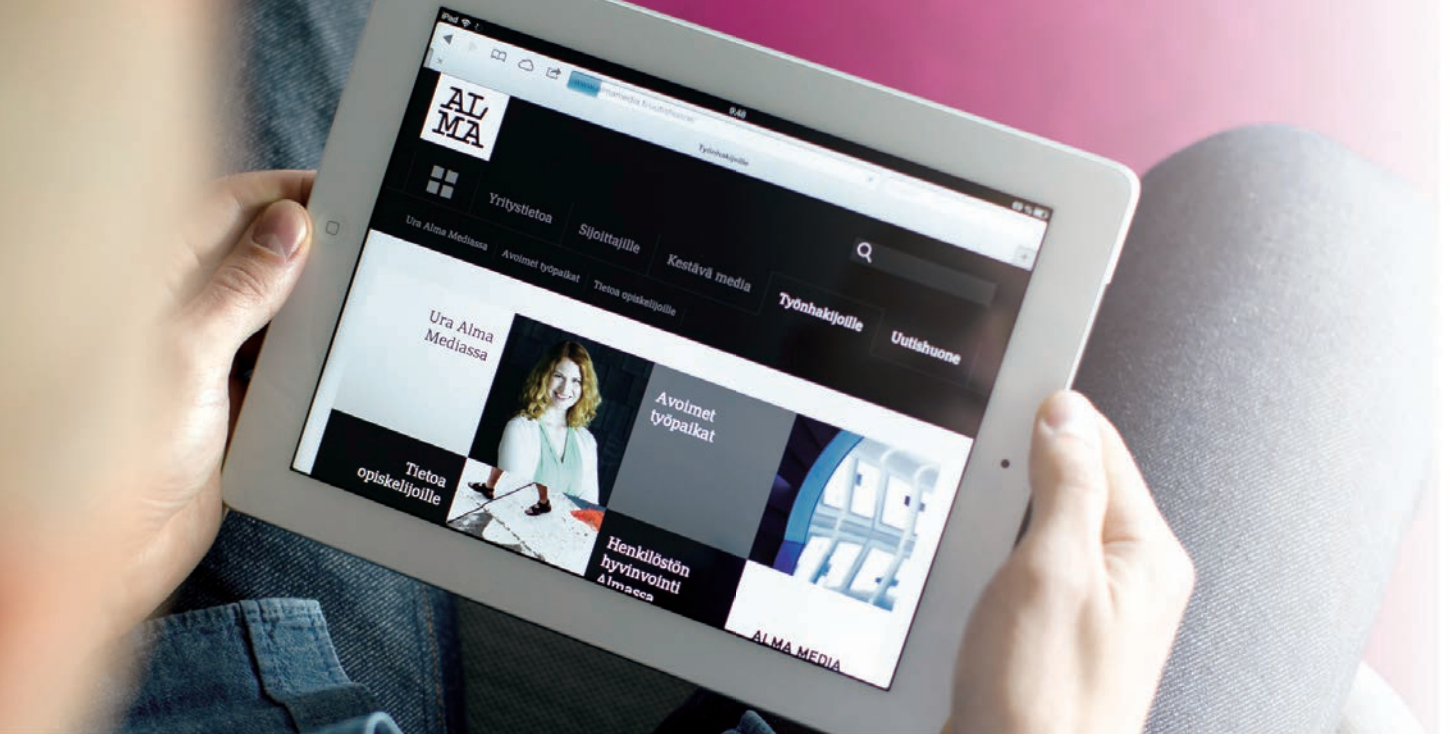
Shizuoka Gas has developed a new marketing platform through a series of projects, ranging from Big Data analysis to the formulation of marketing plans. The company was awarded the CRM Association of Japan Best Practice Award for its successful CRM initiatives. This marketing platform is expected to help Shizuoka Gas continue strengthening competitiveness and growing its business after 2016, when the retail business of household electricity and gas is deregulated and the competition is intensified.

Customer Profile

Dentsu, Inc.

Address :Minato-ku, Tokyo, Japan
Founded : 1901
Employees : 7,425
URL : http://www.dentsu.com

*Customer experience: Experiences gained through the interaction with corporate activities. These include not only the quality, function and price of products, but also the values of experiences gained from the pre-purchase process to their satisfaction after use.
*Panel data: Dentsu original data obtained from multiple rounds of surveys about their consumption behavior and media contact to the same target customers



Transformation of Business and Work Style from a Cloud-based, Digital Service

[Alma Media Corporation]

Human Centric Innovation

Alma Media, a Finnish media group, faces the challenge of declining print sales. Alma Media introduced the Cloud-based Managed Mobile services to reduce costs and increase efficiencies which means employees can work anywhere, anytime with any device of their choosing, transforming their work style. In addition, they can allocate more resources to its digital service business.

"Fujitsu has helped us with the constant development of our IT environment in a rapidly changing industry. Through the modern and reliable IT services provided by Fujitsu, we are on the right track in our efforts to achieve cost savings and an improved end user experience."
Juha Punnonen, CIO

Finding the right outsourcing partner

Alma Media is a strong regional and national media group in Finland with a range of well-known brands as the foundation of its operations. In 2003, Alma Media realized that a company of its size didn't have the resources for a fully dedicated IT department but still needed to provide IT support across its 50 locations and 1,600 users. It wanted to find a partner that could handle basic IT outsourcing, allowing it to concentrate on developing new strategic solutions. In 2004, following a tender process, it selected Fujitsu.

"There were only three vendors with the national scope to cover all our offices and, of those, only Fujitsu had an off-the-shelf, standardized package that was already serving tens of thousands of satisfied customers," explains Juha Punnonen, CIO, Alma Media. "Fujitsu took on responsibility for service desk, workplace management, networking and back-office infrastructure."

Since then, the relationship has deepened with Fujitsu taking on more responsibilities such as wireless deployments and SAP platform support. This helps Alma Media adapt quickly to the changing face of the newspaper industry. As an increasing number of readers turn to free online news sources and print sales decline, media companies are challenged to reduce costs and increase efficiencies.

"The media landscape has changed enormously since we began working with Fujitsu and the pressure to bring down costs without compromising the business is immense," says Punnonen. "Thankfully, Fujitsu has been instrumental in meeting this challenge."

Cloud, contact and mobile

Fujitsu provides ICT services to Alma Media in accordance with Fujitsu's Patja service model. This operating model offers reliable service for the customer, ensuring continued operation of the critical IT services. As part of the service, Fujitsu provides user support to Alma Media with a single point of contact for all IT concerns, providing skilled specialists for customer requirements on a 24/7 basis as well as regular automated software updates.

In addition, Fujitsu manages and operates Alma Media's datacenter services in a centralized manner, increasing the utilization of Cloud-powered services. Fujitsu also provides Alma Media with centralized SAP Contact Center services as well as a platform for the company's business critical regional newspaper online services, ensuring their availability 24/7.

"The largest value is the security that it gives us. The news industry cannot afford downtime and the morning paper has to land on the doorstep every morning. Fujitsu gives us that peace of mind," adds Punnonen. "Our papers are delivered seven days a week and people are reading the websites around the clock so the resilience provided by the Fujitsu data center is critical."

Most recently, Fujitsu has been involved in the deployment of Microsoft Office 365 and the introduction of a Managed Mobile strategy. It has also transferred help desk and server management services to offshore locations in Estonia, Poland and South Africa to further reduce costs.

Fujitsu constantly develops its existing service portfolio, bringing Alma Media various direct benefits, including increased end user satisfaction, cost-efficiency as well as improved application availability.

Moreover, Fujitsu has supported Alma Media with the expansion of its Monster recruiting portal business to several locations abroad.

Lower costs, better service

The partnership with Fujitsu has enabled Alma Media to introduce improved products and services at lower cost. For example, by migrating to the Cloud-based Microsoft Office 365, the company has reduced costs by 50% while doubling the capacity for users. And by offshoring support, costs have been lowered further while maintaining a high level of customer satisfaction. The new service model has also helped the company proactively reduce the number of help desk calls.

"We still have the best user support but we can make a significant impact on running costs and that come down to Fujitsu's global reach and the ability to

seamlessly transition services to other locations," comments Punnonen. "And by migrating to Cloud-based services, we can make additional savings across the company. This means we can be more competitive in a cut-throat industry and that is vital."

Managed Mobile will also deliver tangible benefits. Alma Media does not want to dictate which mobile device its employees use but that raises challenges when it comes to supporting multiple vendors and models. Together with Fujitsu, the company will support all devices, which ensures optimal productivity for users.

"It is a flexible support platform that means our employees can use their devices to work from anywhere and do not have to worry if something goes wrong," continues Punnonen. "And it takes the pressure off my team and frees up resources to focus on adding strategic value to the company."

With Fujitsu as its IT service provider, Alma Media is able to concentrate more on improving its digital services business. Furthermore, the workplace and datacenter services and the new SAP Contact Center platform provided by Fujitsu enable the company to provide high-quality customer service for its subscribers and to develop new products to better meet the needs of those subscribers.

"We can sleep more soundly at night thanks to Fujitsu. It has taken on the burden of support across a huge number of critical areas and we are thus confident that if something does go wrong, it will be quickly fixed," concludes Punnonen. "And, rather than firefighting, my team can therefore focus on strategic development."

Customer Profile

Alma Media Corporation

Address: Helsinki, Finland
Founded: 1846
Employees: 1,900
URL: http://www.almamedia.com

Visualizing Farming Data for Better, More Sustainable Rice Crops

[Asahi Shuzo Co., Ltd.]

Human Centric Innovation

Sake brewer Asahi Shuzo needed to ensure a stable procurement of sake rice for its Dassai brand sake. They implemented Akisai, Fujitsu's cloud service for the food and agricultural industries. Asahi Shuzo aims to increase total production of Yamada Nishiki, a variety of rice that is hard to grow. With this cloud platform, they collaborated with farmers, and agricultural businesses, sharing data, expertise and experiences in rice cultivation, and they will be able to offer the Dassai brand to a much wider market, across the world.

"We look to expand rice yields through numerical management by analyzing farm data, just as we do in our brewery. That way, we can share Dassai with more people around the world."
Hiroshi Sakurai, President

Sharing Dassai brand sake with the world

Asahi Shuzo Co., Ltd. is the brewer and distributor of Dassai, a sweet, full-bodied sake with a unique flavor that has achieved high acclaim both at home in Japan and abroad. Dassai has captivated sake fans all over the world, from the U.S., Germany and France to Monaco, Egypt and Hong Kong.

Demand for Dassai is extremely high, and Asahi Shuzo has always been challenged to keep pace with it.

Challenge to keep pace with the high demand

Dassai is a high quality sake, distinctive for its lack of impurities, and brewed from a rice called Yamada Nishiki. Over half of each rice grain is milled away, leaving only the savory center of the rice kernels. This makes Dassai a clear and full-bodied sake with glamorous aroma, however substantially more rice is needed per bottle than other sakes.

And Yamada Nishiki has always been a notoriously

difficult variety of rice to produce. It is delicate and requires meticulous control of both water and fertilizer. It is not an easy rice variety for inexperienced farmers to break into either–most of the knowledge of growing it has been passed down from father to son. To make matters worse, many farmers have left the industry, and with numbers dwindling, the skills and experience to grow Yamada Nishiki were being lost.

Add to that a boom in the popularity of sake, and the pressures on supply were magnified. Asahi Shuzo took as many measures as they could. While sake is normally prepared in the winter and brewed through the spring, the company implemented a year-round brewing method to meet demand. In addition, they introduced careful measurement and data analysis into the process.

Even so, in 2013, Asahi Shuzo required 4,800 metric tons of Yamada Nishiki rice to meet its brewing needs. They fell short, only able to secure about half of this quantity. Asahi Shuzo could have raised the price of the brand, but they wanted to bring their brand to wider global market, so finding a way to secure the cultivation of the Yamada Nishiki became a priority.

Using farming data to make sake

The solution Asahi Shuzo found to meet this challenge was Fujitsu's Akisai. Akisai is Fujitsu's cloud service for the food and agricultural industries, bringing data and analytics to farm management. For Asahi Shuzo, who had already introduced some data-based methods, Akisai was a great fit.

The first step for Asahi Shuzo came in April 2014. Akisai was adopted by two rice farms, installing sensors in the paddy fields to measure air temperature, humidity, soil temperature, soil moisture and soil fertility, collecting data on an hourly basis. They also had cameras installed for fixed-point observation, capturing panoramic views of the fields every day to show daily changes. Akisai summaries of this work data now showed farmers how much of what kind of fertilizer was sprayed and when. All this was available at their fingertips, either on computer or smartphone.

Networking to expand Yamada Nishiki production yields

With this data, now farmers could determine the best timing for when to fertilize and harvest their crops. Armed with Akisai, now even farmers with no experience of growing Yamada Nishiki rice are supported to produce it in high enough yields.

Asahi Shuzo has begun a program of teaching

courses in cultivating Yamada Nishiki rice as a new initiative for sharing data and developing knowledge in the industry. Through the data they collect using Akisai, they hope to expand the ecosystem and attract more Yamada Nishiki farmers, further increasing yields. Four new agricultural corporations are already set to join in on the movement from spring 2015.

Asahi Shuzo had a number of other supporters with high expectations for agricultural applications of ICT. For example, fertilizer manufacturers expected to find the Akisai data useful in developing fertilizers for Yamada Nishiki rice. Also, there is an opportunity to rejuvenate agriculture and local economies in remote, and mountainous regions. As the benefits of these ICT applications come into focus, agricultural ecosystems built on Akisai platforms will undoubtedly expand in the future.

Customer Profile

Asahi Shuzo Co., Ltd.

Address: Iwakuni City, Yamaguchi Prefecture, Japan
Founded: 1948
Employees: 90
URL: http://www.asahishuzo.ne.jp/en/

Improving Disaster Response and Management

[DKI Jakarta Province Regional Disaster Management Agency]

Human Centric Innovation

DKI Jakarta Province Regional Disaster Management Agency is using Fujitsu's Disaster Information Management System application to transform the way it deals with natural disasters. It can now respond much more quickly and accurately to unforeseen catastrophes, helping save lives and minimize destruction.

"DIMS has helped BPBD DKI Jakarta in accelerating information management during disaster mitigation, particularly during severe flooding that hits Jakarta." *Edy Junaedi, Head of Informatics and Controlling Division*

Enabling information access

DKI Jakarta Province Regional Disaster Management Agency (Badan Penanggulangan Bencana Daerah – BPBD DKI Jakarta) is a disaster management agency responsible for determining the guidelines and directives on fair and equal relief efforts that include disaster prevention, emergency response, rehabilitation, and reconstruction. Its mission is to protect the people of Jakarta through disaster risk reduction, to increase the people's readiness, and enhance the region's capacity for disaster management.

The existing manual system at BPBD was unable to perform fast and accurate disaster mitigation actions and information assembly. For instance, it took five to seven days to gather critical information about a disaster (e.g. level of inundation and affected locations), which created delays in the deployment process at BPBD stations and headquarters. This impacted the overall flood mitigation process.

Furthermore, BPBD's own portal was often down due to overloaded server capacity. Thus, it prevented citizens from accessing real-time accurate information regarding a disaster. In fact, this issue ran contrary to State law no. 24 on Disaster Mitigation, which clearly states that all Indonesian citizens have the right to acquire fast and accurate information from a disaster early warning system.

Rapid information management

In light of this situation, BPBD needed to enable swift emergency response and bolster the effectiveness and efficiency of disaster management efforts. Fujitsu proposed the organization adopt the Disaster Information Management System (DIMS) application,

which includes functions that can manage damage and shelter information, displayed on a digital map, and can send out messages to staff and related disaster management organizations.

Functions in DIMS applications are under the control of Pusdalops (Jakarta Operation Controlling Center – JOCC), which acts as a subordinate to BPBD. Fujitsu's solution helps BPBD to effectively collect and distribute relevant information to specific receivers. Fujitsu also developed BPBD's web portal to improve information dissemination and eliminate the problem of overloaded access. In addition, Fujitsu will provide consultancy and support services during critical periods, including high-speed response on technical support related to system and hardware maintenance.

Speed, accuracy, availability

BPBD decided to implement DIMS because this solution is able to cover three phases of the disaster mitigation process – pre disaster, emergency response, and recovery. In addition, it supports portals and offers comprehensive solutions with the most competitive cost efficiency. The client also considered Fujitsu's extensive experience in handling disaster mitigation in Japan, which highlighted the quality and reliability of the solutions.

DIMS now enables BPBD to more accurately and quickly collect and centralize disaster-related information, make crucial decisions and provide essential messages, such as early warnings, to disaster management staff and organizations.

"DIMS has helped BPBD in accelerating information management during the disaster mitigation process, particularly during the severe flooding that hits DKI Jakarta. When we still used manual systems during the 2013 flooding, it took five to seven days to receive integrated data, such as flood points and inundated areas," explains Edy Junaedi, Head of Informatics and Controlling Division, BPBD. "Meanwhile, our web portal, which should provide information to the public, did not function effectively. However, with Fujitsu's support, during the 2014 flooding in January, we were able to obtain real-time information and distribute it quickly to ensure effective coordination in the whole disaster mitigation process."

The DIMS developed by Fujitsu facilitates BPBD DKI Jakarta's performance in managing critical and accurate information of major importance in an overall disaster mitigation process. Its main features include accurate early warning transmission: the system can manage information on the water level of rivers and can automatically send warnings to staff

and disaster management organizations about the level of risk and areas likely to be affected in the event of a flood. The warnings speed up initial disaster management activities, such as evacuation orders and the establishment of the disaster countermeasures office.

The solution also assists the operations of staff working at the disaster management command center by using registration information with entry forms and automatic data coordination with a portal web site. This helps handle unforeseen contingencies such as staff shortages and the unexpected increase in response measures which are a common occurrence during natural disasters.

The Fujitsu DIMS displays registered damage and shelter data on digital maps, providing real-time information on the overall situation of the disaster, thus facilitating quick decision making. This DIMS application has therefore improved BPBD's response time significantly. The organization is now able to provide more detailed information to fulfil the specific needs of other agencies in real-time and with high accuracy. As a result, coordination in the whole disaster mitigation process has become more effective and efficient.

DIMS also played a significant role in the acceleration of information assembly and distribution during the Jakarta flood mitigation processes in January 2014 by establishing an early warning system that was fast and accurate and thus able to speed up the recovery. "Fujitsu's experience in providing DIMS for disaster management in Japan is a guarantee for us to implement a similar system in mitigating disaster in DKI Jakarta Province," concludes Edy.

Customer Profile

DKI Jakarta Province Regional Disaster Management Agency

Address: Jakarta, Indonesia
Founded: 2011
Employees: 40
URL: http://bpbd.jakarta.go.id/

Using Supercomputers for Safer Heart Surgery

[The University of Tokyo]

Human Centric Innovation

The University of Tokyo and Fujitsu have jointly developed a heart simulator visualizing cardiac motion at the cellular level. The 'K computer'* performed the complex calculations modeling the motion of 640,000 cells to simulate the mechanism of the heart. In the future the simulator will enable doctors to plan for surgery more effectively by predicting the results of their interventions, and help to discover the causes of diseases, leading to new innovation in healthcare.

"We hope that the cellular-level heart simulations conducted by supercomputers will be introduced to the surgery of congenital heart diseases that are difficult to operate and which require advanced skills."
Toshiaki Hisada, Research Professor, the University of Tokyo

Digitizing the heart to help doctors plan surgical procedures

Many mysteries in the human body are still unsolved. The mechanism of the heart is one such mystery. MRI, CT scans, electrocardiograms (ECG), and pacemakers are all remarkably advanced, but they can only measure the state of a heart as a whole. They do not show us how each cell is acting, and how they interact in a complex, synchronized way to push blood around our bodies. This complexity means understanding and treating heart problems is a challenge. For instance, 'dyssynchrony' is a condition where contractions of left and right ventricles are not properly synchronized. Patients who suffer this are currently given Cardiac Resynchronization Therapy (CRT) which uses a pacemaker to synchronize the timing of contractions. CRT costs a lot, but 30% of CRT operations does not yield the expected result and improve the health of the patient.

The University of Tokyo has been making strides in tackling this issue for many years. Since 2001, Research Professor of Engineering Toshiaki Hisada and Doctor of Medicine Seiryo Sugiura have led a research initiative to reproduce cardiac motion on computer simulations. The team analyzed the biochemical reactions from the huge number of cardiac muscle cells that make up the heart, and created a dynamic and a physical model. In 2008, they began using a supercomputer, developing a simulator to digitize the behavior of the heart, reproducing valve motions and blood flow in the atria and ventricles in detail.

Being able to simulate at such an intricate level of

detail has had huge impacts in the treatment of heart disease. Prior to the surgery doctors normally planned the operation carefully by referencing MRI and CT images. However, in case of a ventricular aneurysm, where some of the heart muscle cells have died, MRI and CT scans are not particularly helpful. Doctors decide how much of the heart tissue needs to be removed only when they see the affected area during surgery. The computer simulation, however, allows doctors to accurately analyze the state of the heart prior to the operation and work out how much tissue needs to be taken out. They can estimate the ventricular pressure and how much blood can be pumped per stroke, after the surgery.

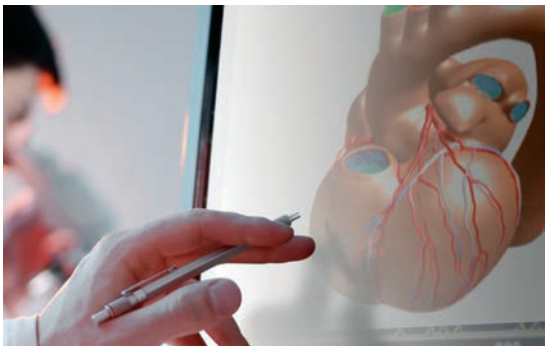
Real-time simulations of cardiac muscle cells

While this work was seen as a big success, the team did not rest on their laurels. Professor Hisada wanted to improve the accuracy of the simulator still further, but he now faced a difficult challenge. The precise alignment of heart muscle fibers vary from patient to patient. To understand the exact expansions and contractions of the muscles, the action of every individual muscle cell must be simulated. Only a supercomputer with enormous computational capacity could handle such a complex task. Fujitsu Laboratories were at the same time looking for possible of applications of the K computer, and had been considering the possibility of medical simulation for some time. So the University of Tokyo and Fujitsu agreed in September 2007 to begin research jointly which resulted in March 2014 with the 'Heart Simulator UT-Heart'.

Aiming to predict the result of the surgery and discover the causes of diseases by supercomputer

UT-Heart combines 640,000 digitally-modeled cardiac muscle cells with 200,000 degree of freedom in order to simulate the real mechanisms of the heart. The heart contracts by propagating electric signals one cell to another, and UT-Heart exactly simulates this movement. It can not only visualize the blood flow within the capillaries, but also can show a cross sectional view of three dimensional computer graphics which can be explored simply with a few clicks of the mouse. With existing computing technology, it would have taken about three years to simulate the motion of the 640,000 cardiac muscle cells performing one and a half heartbeats. The K computer can finish this calculation in 17 hours. What once seemed impossible has become a reality.

With UT-Heart running on the K computer, the concept of pre-surgical predictions of heart surgery is coming into reality.



The K computer simulated an electrocardiogram of patients who have ventricular dyssynchrony and put the three electronodes of a pacemaker to their heart. The simulation model was created from the MRI data, ECG images, blood pressure and other data. This model produced almost the same electrocardiogram as that of the patients after surgery, proving the simulation works.

UT-Heart can allow doctors to find effective positions for pacemaker electrodes. In some cases, a pacemaker will have no effect in any position, but knowing this allows doctors to recommend alternative treatments. In the future, cell-level simulations are expected to uncover the causes of dilated cardiomyopathy, a condition in which the heart muscle enlarges, resulting in a reduced blood flow from each heartbeat. It is also expected that simulations will help doctors to operate on congenital heart defects which require judgment and skill.

The University of Tokyo and Fujitsu will continue to collaborate in supporting the surgery planning and diagnosing a lot of patients using Cloud, making the simulation treatment accessible to other universities and hospitals. By creating this lifesaving technology, the University of Tokyo and Fujitsu are helping to bring about a safer and more prosperous society.

Customer Profile

The University of Tokyo

Address : Bunkyo-ku, Tokyo, Japan
Founded : 1868
Number of Personnel : 7,671 faculty members and 27,975 students and researchers (as of May 1, 2014)
URL : http://www.u-tokyo.ac.jp/en/index.html

* The K computer: The supercomputer, which was jointly developed by RIKEN and Fujitsu

Driving the Maker Movement for Long-lasting Innovation

[TechShop, Inc.]

Human Centric Innovation

TechShop provides spaces and resources for makers. Together with Fujitsu, they have created 'TechShop Inside! – Powered by FUJITSU', a new initiative for students of all ages to experience 'making'. For school age children, TechShop is enabling their creativity by allowing them to safely engage with the tools they need to realize their ideas. TechShop and Fujitsu hope these children will be inspired by making and will turn into lifelong innovators.

"It's hard to top the satisfaction people get as they see their ideas take form. We want to help people see that we live in an age in which anyone, kids and adults alike, can enjoy making things and innovate in our open workshops."
Mark Hatch, CEO

Open making workshops close the gap between ideas and innovation

TechShop is a pioneer. They are a leader in the Maker Movement, inspiring innovation through making. TechShop offers the general public unlimited use of any of their eight workshops across the U.S. for $125 per month.

One of the greatest values of TechShop is their ability to attract people from various backgrounds. Each location is equipped with a full suite of tools needed for making, from traditional machine tools like lathes to 3D printers and the latest in digital design software and machine tools. By providing access to factory-grade facilities at such a low cost, TechShop attracts entrepreneurs, engineers, artists, designers, hobbyists and students, all under the same roof.

Not only does TechShop lower the barriers to making, it is a place where ideas can come together and fuse with expert knowledge. At these DIY work-

shops, ideas materialize right before your eyes in tangible form, one after another. Many successful innovations started in TechShop.

One example is Square, a card reader attachment for making mobile credit payments using smartphones and tablets. In its fledgling phases, Square hit a wall in raising funds that threatened to keep it from reaching commercialization. After the makers of Square had completed a prototype at TechShop and investors could see the real thing in action, Square secured the financing it needed and is now thriving.

Another successful product developed on the TechShop floor is the Embrace Infant Warmer, a portable incubator. Developed by Embrace, it was designed to save the lives of premature infants born in developing countries who did not have access to desperately needed incubators within their first hour after birth. Five years after its inception in a TechShop workshop, the Embrace Warmer has saved the lives of more than 100,000 children.

There are countless innovations that remain unrealized because there has been no way to give shape to people's visions. TechShop runs the prototyping studios where people can fully exploit their potential, break down barriers to innovation, and build their dreams.

Making opportunities for children with the first portable mobile open makerspace

Provided with the right environment, we all have the power to innovate. Children are no exception. In fact, they often see problems differently and have ideas that would not occur to an adult. We need our children to experience the wonders of making in order to fuel their innovative spirit. With this thought in mind, TechShop announced that they would launch TechShop Inside! - Powered by FUJITSU. The initiative is the world's first mobile open makerspace, housed within a seven-meter long trailer. This space is loaded with much of the same equipment as other TechShops, including hand tools, 3D printers and laser cutters alongside Fujitsu laptops and tablets.

The mobile makerspace itself is the culmination of many unique TechShop ideas. From the beginning, TechShop Inside! - Powered by FUJITSU was developed in collaboration with staff deeply experienced in teaching the workshop's target audience of 8-17 year-olds. The trailer was designed with the specific intent of introducing children to the joy of making, providing selected machining tools that can be safely and easily used even by young first-timers.

In addition, all the equipment in the TechShop Inside! - Powered by FUJITSU trailer is modular,

allowing it to be brought outside the trailer into a wider space, to enable more children to use the equipment.

Becoming lifelong makers

The children who have had the opportunity to use TechShop Inside! - Powered by FUJITSU have been thrilled with the experience. But, this excitement has not been limited to children. The 100 teachers, researchers and administrators invited to the unveiling of TechShop Inside! – Powered by FUJITSU also found it hard to put down tools and leave the TechShop trailer. They took so long, in fact, that the start time of the next session of the event had to be pushed back a full hour from its original schedule. It appears that when faced with the latest in digital machine tools, the instinct to make things takes over.

TechShop has given children and adults alike a forum for experiencing innovation through making. It is enriching the creativity of our children so that when they grow up, they have a sense of personal empowerment and are inspired to make great contributions to society – in any form. No doubt that children will find the experience of learning by making at TechShop Inside! – Powered by FUJITSU very exciting. Some will continue on their path and become lifelong makers.

Customer Profile

TechShop, Inc.
Address: San Jose, CA, USA
Founded: 2006
Employees: over160
URL: http://www.techshop.ws

A roadmap toward a Human Centric Intelligent Society

As seen in these examples, actions toward a Human Centric Intelligent Society are being taken at an individual, enterprise, public sector and cross-industry level. In each case, Human Centric Innovation is applied as a roadmap for growth.
TechShop empowers people by providing access to the latest machinery at a low cost, enabling innovation in start-ups and increasing the creativity of children.
Enterprises take an approach of Human Centric Innovation, by combining three dimensions - people, information and infrastructure - to create value for customers as well as improve operational efficiencies. For example, Auchan introduced a new self-service checkout system developed by Fujitsu. These self-service concepts empower customers to design their own shopping experience and transform the role of the cashier to put greater focus on customer engagement.
Finally, ecosystems have emerged to support people's lives and solve social challenges. For example, automobile, energy and ICT industries have forged an ecosystem for a hydrogen society and started many initiatives including the hydrogen data management service by Fujitsu.
Fujitsu wants to be your innovation partner to help realize growth and together contribute to common good of society.
Fujitsu's portfolio of technologies and services is designed to enable you to deliver innovation, and is introduced in detail throughout the next chapter.

Individuals

Enterprise

Industry and Public Sector

Services, Products and Solutions

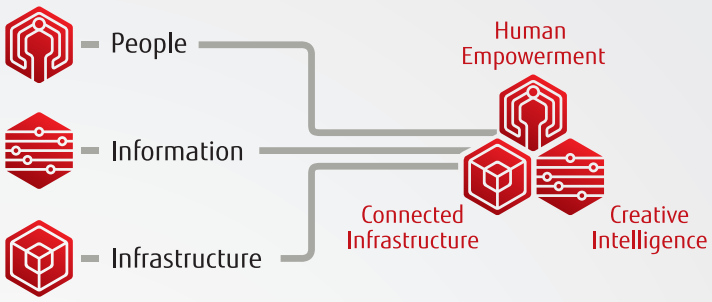
Fujitsu's broad portfolio underpins Hyperconnected System

Fujitsu is one of the very few global ICT companies that can support customers and deliver innovation in all three dimensions of people, information and infrastructure.

Fujitsu's technologies and services delivering Human Centric Innovation

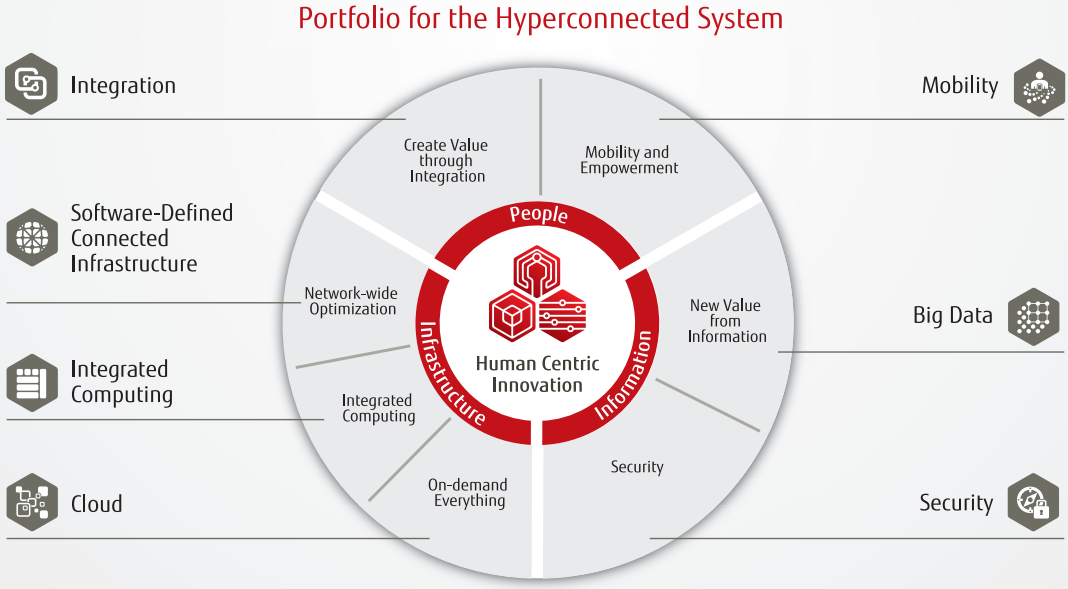
Human Centric Innovation

In a hyperconnected world, innovation has different characteristics. Human Centric Innovation is a new approach to realizing business and social value by creating solutions and services that bring together people, information and infrastructure.



Technology and service we provide

Fujitsu provides broad technology and service portfolio which underpins the hyperconnected system. We are strengthening our portfolio of technologies and services in alignment with the concepts set out in the Fujitsu Technology and Service Vision.



Technology Ecosystem

To offer the best solutions, Fujitsu has developed strategic alliances with these leading ICT companies. Bringing together our in-house technologies and their complementary capabilities enables us to co-create new value for our customers.

BROCADE, ca technologies, CISCO, CITRIX, intel, Microsoft, NetApp, ORACLE, redhat, salesforce, SAP Global Partner, SUSE, Symantec, vmware

Human Empowerment

Create Value through Integration

Fujitsu uses expertise to drive innovation for customers through co-creation and the optimal integration of technologies and services

Information systems in the hyperconnected era

How can we develop information systems that help increase corporate value and create competitive advantages in the hyperconnected era? Improving operational efficiency and reducing costs are good, but not enough. Fujitsu thinks that the answer is to develop a system which can quickly adapt to changes in the business environment as well as new technologies. It is also crucial to build such a system in collaboration with customers. The way working together with customers is called 'co-creation'.

Preparing for innovation

Many years of frequent system updates and modifications have caused huge complexity in most of the existing enterprise systems. This situation prevents their timely response to changing business requirements. It also demands an enterprise to incur very high costs for just keeping the lights on. To address this common challenge of enterprise IT, Fujitsu proposes a solution aimed at modernizing our customer's existing systems and migrating them to systems with a flexible architecture, we call this 'Next Architecture'. And it is an interim step. This architecture is characterized by 'loose coupling'. It means that individual systems are loosely connected, while maintaining their independence. This interim architecture allows enterprises to flexibly reconfigure business processes and rules.

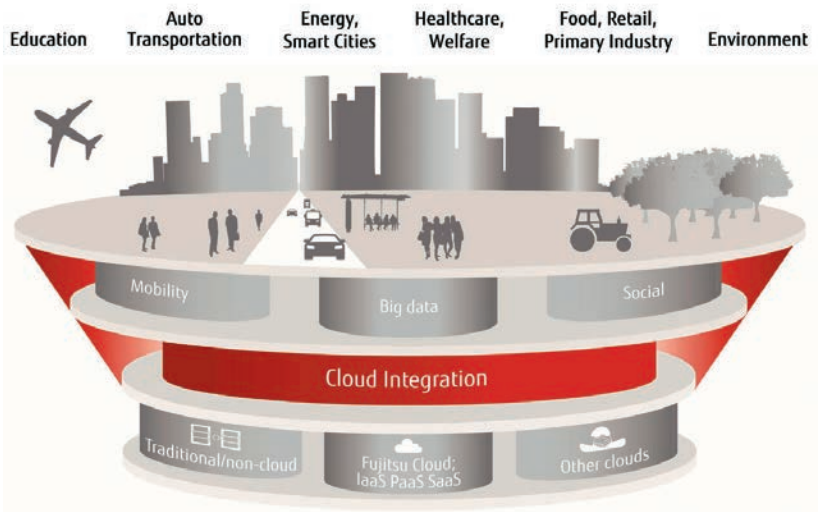
Co-creating innovation

In a hyperconnected world an enterprise must consider developing a new type of information system. This is a system for engaging with people and connecting various things to create value. In order to develop this type of IT system, it is critical to understand what value it should provide and create system requirements accordingly. Fujitsu integrates a system tailored for each customer, leveraging our extensive experience in developing various systems across industries. Based on this objective, we hold hackathons with our customers to create ideas and develop system models together. Through the team exercises, Fujitsu engineers can also learn communication skills and how to facilitate sessions, essential to leading a co-creation project. During customer engagements Fujitsu also uses agile system development method. For example, we applied this method to an application development for a life insurance company, which resulted in a 20% reduction in man-hours and one and a half month shorter development time than the conventional method.

With diverse skills and experience, Fujitsu's system engineers will not only support your existing systems but contribute to creating future value together.

Fujitsu's Integration Concept

Fujitsu delivers next level solutions for customers in a competitive environment. Leveraging the latest industry trends, advanced system development and business know-how, Fujitsu provides end-to-end integration services from planning to system operation.



Services, Products and Solutions

Services

Business Services

Fujitsu's portfolio encompasses capabilities from IT optimization and sustainability consulting services, which confront real business issues including cost, efficiency and the environment.

■ Business Consulting

Fujitsu's Business Consulting enables clients to achieve greater operational efficiencies, performance and maximize ROI of current existing and planned IT implementations and business strategies.

■ IT Consulting

Fujitsu's IT Effectiveness services ensure customers' current and future investments in IT are maximized and support business objectives. Fujitsu uses a consulting led approach, aided by robust assessment tools. Services include: IT Strategy and Effectiveness, Application Value Assessment, Legacy Modernization, Flexible Work Environment, Data Center Assessment, and IT Service Management.

Application Services

Fujitsu provides a full range of application services to support the development, integration, testing, deployment and ongoing management of both custom developed and packaged applications. The services focus on delivering business and productivity improvements for organizations. Solutions frequently involve the integration of external and existing internal systems to deliver benefits across business processes. The services cover both project based activity and ongoing management; they leverage cloud services for effective delivery where appropriate; and address the challenges of migrating and modernizing application assets as well as new applications.

■ Application Development and Integration

Application Development and Integration Services help customers respond to change by defining and delivering application transformation projects. Fujitsu's experience in dealing with complex multi-vendor environments and emerging trends/technologies, ensures that projects are managed professionally and on budget. Offerings include: Package Implementation Services, Custom Application Development, Systems Integration, Application Modernization and Migration, and Test and Validation Services.

■ Application Management and Outsourcing

Fujitsu provides services for the end-to-end management of applications that are underpinned by strong and collaborative governance that ensures delivery of quality service and continuing customer value from the application portfolio and support the steps of Digital Transformation. The services cover: Transition – The low risk transfer of service responsibility from the current provider to Fujitsu, Manage - Stabilization of the application portfolio, service optimization and minor enhancement, Application Value Assessment - Proactive identification and planning of application and service improvements to enable business value, Application Transformation - Delivery of major application transformation projects, re-architecture and systems integration using our other application services.

Services, Products and Solutions

Services

■ Enterprise Applications

Fujitsu's Enterprise Applications services cover the design, development, configuration, implementation, rollout and ongoing management of solutions based on packaged ERP applications. Fujitsu provides scalable services for market leading software products such as SAP and Oracle, covering core business functions including finance, HR and supply chain management.

■ SAP Services

Enterprises around the world have made significant investments in SAP technologies to assist with this challenge but need support in getting the most out of their vast capabilities. As a trusted SAP Global Partner for over 40 years, Fujitsu offers a complete range of tailored, future-proof SAP services that help customers simplify, innovate and grow. We are driving innovation across all areas of financial and operational performance–from cloud services via managed SAP operations to solutions and services for on-premises deployments.

■ FUJITSU Cloud Integration Platform

- Reducing the cost and complexity of managing hybrid IT -

The FUJITSU Cloud Integration Platform addresses the key challenges of managing a hybrid IT landscape of cloud and non-cloud systems. It is a unified platform for aggregating, integrating and managing cloud and non-cloud services. The FUJITSU Cloud Integration Platform builds on proven heritage in system and service integration and comprises functionality to cover: management, resource provisioning and reporting, process and data integration, system and process monitoring, service management, data management as well as identity and access management.

■ Legacy Modernization

Legacy Modernization will link back to modernizing Systems of Record and enabling integration with Systems of Engagement.
A comprehensive set of Legacy Modernization services that enable customers to more easily migrate or modernize legacy applications to reap the benefits of cloud services, minimizing the risks and costs - and giving them greater flexibility for the future.
Legacy Modernization comprises:
- Application Value Assessment: identifying which applications would benefit from legacy modernization and cloud deployment.
- Application Modernization: utilizing the cloud without moving the entire application to the cloud - for instance, moving the front end or database.
- Application Migration: migrating entire applications to the cloud.

Managed Infrastructure Services

Fujitsu's Managed Infrastructure Services provide a cost effective, reliable and flexible ICT infrastructure to customers. This infrastructure may be owned by the customer or Fujitsu on their behalf. Our services comprise Data Center Services, End User Services, Service Desk, Technical & Maintenance Services, Infrastructure as a Service, and Network and Communication.

■ Data Center Services

Fujitsu's Data Center Services provide our customers with the complete range of services to ensure their IT systems are fully operational for their users as well as to improve their IT flexibility, efficiency, performance and to reduce their costs. Our operational Datacenter Services comprise Datacenter Outsourcing where we take on the responsibility for managing and transforming your services. Remote Infrastructure Management (RIM) for servers, storage and other DC and cloud hosted infrastructure. Managed Hosting for Cloud and non-cloud systems: backup and recovery services as well as DC network services.
In addition Fujitsu has technical consultancy and project services that enable us to undertake assessment, advisory, migration and transformation projects for our customers - either as part of a wider outsource or as part of the customer's journey towards cloud infrastructure.
As part of the transformation of customer infrastructure we increasingly include FUJITSU Cloud IaaS – whether Public, Private or Private Hosted.

■ End User Services (EUS)

Fujitsu's End User Services are for organizations who want to securely access applications and data on any device in any location. EUS underpins business agility and delivers business value while reducing the costs to business, and improving the user experience. EUS is a superset of a number of offerings and services that enables Fujitsu to offer a blend of traditional and cloud based services to meet each customer's individual needs. EUS encompasses: Desktop Managed Service, Virtual Client Services, Managed Mobile, Enterprise Communication Services, - all supported by Service Desk, Technical & Maintenance Services and Service Delivery Management.

■ Service Desk

Fujitsu can offer multi-lingual service desk support in more than 30 languages out of our five global service desks in Costa Rica, Malaysia, Poland, Portugal, and the Philippines, enhanced by local service desk capabilities in over 30 countries. Fujitsu's service desk agents are committed to delivering exemplary service quality that enhances user experiences. They are empowered to go beyond fixing problems and to identify root causes. Our focus is on the value we can create for our clients and the quality of the customer experience we deliver. By applying Sense and Respond - our approach to implementing lean principles in a service environment, we seek to fix users' problems quickly and easily, and to see how these problems can be eliminated permanently-eradicating waste from the IT service. Through TRIOLE for Services, all our global service desks work to the same processes and standards, compliant with the ISO 20000 international standard, operating to best practice principles and delivering exemplary service quality.

Services, Products and Solutions

Services

■ Technical and Maintenance Services

Business processes and continuity depend on a reliable IT infrastructure. Fujitsu has a proven track record in delivering Technical and Maintenance Services for Fujitsu and multi-vendor products as well as the complete IT infrastructure on a global scale. These can be enhanced by our customized Managed Maintenance services which cover break/fix services for Fujitsu products as well as multi-vendor client devices, departmental servers, departmental storage systems, enterprise servers, enterprise storage, printers and network devices (including IP phones), retail cashiers or ATMs.
The Fujitsu expert teams have the capability and capacity to deliver all services locally - anywhere around the world. Our standardized offering can be adapted and expanded to meet individual needs. Rollout and Project Management services cover large-scale, fully managed, global rollout activities and the related project management to ensure that the integration into an existing IT environment runs smoothly with minimum interruptions of the daily business. Lifecycle Management services cover the full IMAC/D spectrum after the new products are integrated into the IT infrastructure. Fujitsu serves as the one-stop resource for the customer's whole IT environment.

Products

Software

Fujitsu is the only Japanese vendor with a systematic software product lineup. Fujitsu integrates optimal systems according to customer needs and objectives, based on a core lineup of proprietary technologies and products combined with supplementary partner software products and open-source software.

■ Middleware

■ FUJITSU Software Interstage Business Operations Platform

This solution integrates multiple business systems using a web service, supports companies in developing new business processes. The solution has a wide range of features, including connectors that link existing SAP systems and other business packages as web services without requiring application revisions or connection add-ons, processes, data connectivity, and user interfaces. With this single solution, companies can build services that support new business processes.

■ FUJITSU FlexFrame Orchestrator

Fujitsu's innovative FlexFrame Orchestrator solution enables operating SAP applications, databases and the SAP HANA platform easier, faster and more effectively. It simplifies the management of complex SAP environments, optimizes planning, operation and change management and reduces costs by up to 90% while increasing agility by up to 50%. Comprising most advanced orchestration and administration capabilities, FlexFrame Orchestrator is an optimized operational concept for the entire SAP landscapes.

Integrated Systems

Under the name of FUJITSU Integrated System PRIMEFLEX, Fujitsu provides a broad lineup of Integrated Systems. PRIMEFLEX encompasses factory-installed solutions which are ready-to-run and reference architectures which can be easily adjusted to customer-specific requirements. Both options are supplemented by truly attractive service offerings. (For a full description, please see the 'Integrated Computing' section on page 45.)

■ SAP

■ FUJITSU Integrated System PRIMEFLEX for SAP Landscapes

FUJITSU Integrated System PRIMEFLEX for SAP Landscapes allows a rapid high-quality implementation of infrastructure for SAP applications and databases including new developments like S/4HANA. It is designed, delivered and supported as one product. The integrated FlexFrame Orchestrator software offers consistent and standardized administration of infrastructure, databases, and applications. This makes operation more reliable and dramatically boosts responsiveness throughout the business enterprise.

■ FUJITSU Integrated System PRIMEFLEX for SAP HANA

PRIMEFLEX for SAP HANA is backed by 40 years of experience in delivering fast, secure, high availability implementations with optimized TCO, successfully reducing complexity. Fujitsu's SAP HANA expertise, infrastructures and services enable customers to fully exploit the potential of the SAP HANA platform (For more information, please see the 'New Value from Information' section on page 39.)

■ FUJITSU Integrated System PRIMEFLEX for SAP Adaptive Server Enterprise

This end-to-end solution incorporating integrated services and support has proven to be reliable and affordable for extreme transaction processing. At the same time it is able to keep pace with the constantly increasing amount of data and transactions. It significantly reduces complexity, time to production, risk, and TCO for enterprises.

Solutions

Industry Solutions

Fujitsu's long and comprehensive global experience means we have been able to develop expertise across a number of industries. Working together with customers we drive value by utilizing industry specific know-how.

- Retail *Featured below
- Automotive
- Healthcare
- Life Sciences
- Financial Services
- Manufacturing
- Telecommunications
- Energy and Utilities
- Public Sector
- Defense and National Security
- Education
- Logistics
- Distribution
- Food and Beverage
- Betting and Gaming
- Media

FUJITSU Retail Solutions

Fujitsu is delivering comprehensive value for over 500 retailers in 52 countries and powering over 82,000 stores worldwide. With more than 30 years' experience in retail and a broad portfolio of retail solutions backed by enterprise ICT products and services, we are focusing on three core capabilities that ultimately deliver retailers a differentiated customer experience under the ethos of 'Connected Retail'.

- Innovative retail solutions
To support and future-proof the customer experience in today's multichannel world; this includes Fujitsu Market Place -our omni-channel PoS application- and new solutions from our innovation labs around the world.

- Connected enterprise
Linking applications, information and communication within the store, between the front and back office, and between multiple vendors to deliver a seamless and integrated customer journey, including enterprise solutions, and outcome-based enterprise services.

- Global delivery
The assets and capabilities to deliver consistent cross-border solutions.

Business and Technology Solutions

Intelligent Society Solutions

Utilization of ICT has gained popularity in social infrastructure fields such as Food, Agriculture, Health & Medical care, Transportation, Education and Energy. Aimed at addressing various social challenges in these fields, Fujitsu is continuously creating new value through innovative ICT such as cloud and mobility solutions.

- **FUJITSU Intelligent Society Solution RFID and Sensor Solution**
- **FUJITSU Intelligent Society Solution Akisai**
- **FUJITSU Intelligent Society Solution SPATIOWL**

Technical Computing Solution

Building on our long-standing history of innovation, 30 years of experience in the development of supercomputers and the exceptional depth and breadth of our offering, we provide the enabling technologies and services for a wide range of aerospace, meteorology, astronomy, healthcare and industrial projects. We have also teamed up with numerous prominent research agencies to design bespoke solutions for the most varied and challenging technical computing applications.

- **FUJITSU Technical Computing Solution TC Cloud**

Sustainability Solutions

Balancing economic, social, and environmental sustainability presents both opportunities and challenges for modern-day businesses. Organizations that understand the need to use their ICT innovatively while focusing on its optimization, resource and energy efficiency will gain from both a business advantage as well as social responsibility. Fujitsu helps your organization optimize the efficiency of its ICT equipment and data centers, saving you money and reducing greenhouse gas. Our Enterprise Sustainability services align your sustainability objectives with your business goals for sustainable growth.

- **FUJITSU Enterprise Sustainability Consulting**
- **FUJITSU ICT Sustainability Framework**
- **FUJITSU ICT Sustainability Benchmark**

Infrastructure Solutions

Infrastructure Solutions typically consist of various IT components and combine them to serve specific usage scenarios. Decades of experience and collaboration with leading software vendors have enabled us to offer platform-specific as well as platform-independent operating and management solutions and frameworks that provide best-in-class quality.

- SAP Infrastructure Solutions
- Virtual Client Computing

(For a full description of 'Virtual Client Computing', please see the 'Mobility and Empowerment' section on page 37.)

Note: Availability featured here may differ by region.

Human Empowerment

Mobility and Empowerment

Fujitsu supports people's decisions and actions and transforms their workplaces with mobile technologies

Workplace anywhere

At Fujitsu, we continue to provide our customers with comprehensive support for transforming their workstyle through mobile devices, mobile infrastructure and applications. Fujitsu offers a blended service that helps enterprises to mobilize their business processes and their workforce. Our end-to-end services cover desktop and mobile, communication and collaboration, with solutions that are device, carrier and data-source agnostic. Employees get seamless and secure access to data, applications and communication tools from a desktop, notebook, thin client, tablet or smartphone – no matter whether the device is company or privately owned in a corporate network or in a public place. In addition, security policies corresponding to BYOD are applied to separate company data from private data.

Mobile platform innovating the workplace

Use of enterprise mobile applications presents a number of issues which must be overcome. Unlike consumer applications, enterprise applications require advanced security and authentication features, efficient development environments with multi-OS support, and operability in mobile-specific usage environments. At Fujitsu, we have created several platforms for developing and executing mobile applications along with our alliance partners. For Japanese market we provide 'FUJITSU Software Interstage Mobile Application Server', a middleware product for customer on-premises environments. We also provide 'FUJITSU Cloud PaaS MobileSUITE' as a cloud service. Multi-platform development environments and HTML-5 based application development drastically reduce development costs. In addition, the unique application distribution functionality provides enterprise class security through secure encrypted distribution without using a public app store. Decryption only occurs when the application is running.

Mobile application innovation in the workplace

Fujitsu has achieved workplace innovations in the field of equipment maintenance and inspections with 'FUJITSU Software Interstage AR Processing Server'. This product is the first on the market to integrate smart devices and augmented reality (AR) technology. To use the system, field workers wave the camera of their device at an AR marker or recognition target on site, or sensors recognize their positional information. This allows the workers to display operation manuals, repair history and other information as necessary, superimposed on the display on their smart device. All this serves to greatly reduce man-hours of site workers and prevent accidents by reducing human error. By visualizing the accumulated know-how of skilled workers, we can provide better opportunities for the transfer of knowledge and technical proficiency.

Evolving mobile devices

Fujitsu is maximizing the potential of mobile devices as a personal technology platform, and a key to empowering people. Fujitsu has been applying our advanced sensing technology to provide context-aware support for people in their immediate setting. These technologies have been embedded in our mobile devices as 'Human Centric Engine'. Fujitsu will continue to create new value by using these technologies as a sensor device, incorporated into wearables and various other embedded systems in the era of the IoT.

Services, Products and Solutions

Services

Managed Infrastructure Services

■ End User Services (EUS)

EUS underpins business agility and delivers business value while reducing the costs to business, and improving the user experience. We achieve this by offering a single blended service that allows us to provide the best-fit service model to satisfy the different roles and requirements of your users. Virtual Client Services and Managed Mobile are architected to be integrated and so provide a seamless end user experience that maximizes individual productivity. (For more information about 'End User Services', please see the 'Create Value through Integration' section on page 33.)

■ **Virtual Client Services (VCS)**

VCS is Fujitsu's proven approach to desktop virtualization providing a workplace platform which enables your workforce to securely and seamlessly work and collaborate from anywhere, at anytime via devices of their choice. We can deliver services based on hosted solutions or solutions that are deployed on premises, we offer on-demand or dedicated infrastructures - designed and managed to provide the high levels of availability needed to underpin the productivity goals of any business; while protecting the key information assets precious to that business.

■ **Managed Mobile**

Fujitsu can help to manage the growing complexity of non-standard, geographically dispersed mobile infrastructure environments, while safeguarding corporate data and protecting privacy. Our managed mobile offering is an enterprise-class, cloud-based, modular services for securely managing mobile devices, and access to applications and data.

■ Network and Communications

Fujitsu's Network services for inter-site communications, deliver a carrier-class network infrastructure combining cost competitiveness and security with high performance. An innovative alternative to traditional networks, our cloud connectivity services are based on an aggregate bandwidth pricing model. Cloud-based Enterprise Communication Service offers consumption-based voice and unified communication applications hosted in the cloud, including Hosted Voice over IP, Collaboration, Contact Center and Mobile Device Management.

■ **Global WAN Services**

Fujitsu Wide Area Network (WAN) provides global connectivity. This includes Managed WAN, Managed Virtual Private Networks, Managed Wavelength and Managed Firewall Services together with Campus LAN and Distributed LAN services.

Products

Client Computing Devices

Fujitsu is a leading provider of mobile and stationary devices for corporate customers. Fujitsu's tablets have become the standard in a wide variety of environments including government, healthcare, sales force automation, and education. In addition, customers have come to depend on the reliability, quality, innovation and human centric technology of Fujitsu products. Furthermore, Fujitsu offers a complete range of environmentally conscious products and uses environmentally friendly technologies and processes throughout the entire product lifecycle.

■ Notebooks and Tablets

The broad FUJITSU LIFEBOOK Notebook and STYLISTIC Tablet portfolio offers a range of powerful products covering the needs of enterprise as well as small and medium businesses. Extensive configuration options provide ultimate flexibility and convenience, and innovative energy-saving technology that reduces the environmental footprint of your notebooks. Moreover, every FUJITSU LIFEBOOK and STYLISTIC delivers the highest reliability, supported by 30 years of experience.

■ Desktops

The FUJITSU ESPRIMO family brings a complete range of fully featured and highly expandable desktops that dependably run the office applications of today and tomorrow. Their superior reliability comes from best-in-class Fujitsu development and outstanding production quality. The world's most efficient power supplies lower your energy bill and reduce your environmental footprint. With individual configuration options and the unique manageability solution, ESPRIMO Desktops help to reduce deployment costs and flexibly manage each system for years to come.

■ Workstations

Fujitsu's CELSIUS workstations offer a sophisticated combination of leading-edge processor and graphics performance to increase application efficiency. These high-quality, modular products in multiple form factors are configurable for an organization's precise needs. Thanks to comprehensive ISV certification, customers enjoy smooth and trouble-free operation of all your applications. Best-in-class noise emissions help to maximize productivity by contributing to a quieter working environment.

■ Thin Clients

For optimized server-based computing or desktop virtualization, choose FUTRO thin clients. Every device in the range is designed and engineered to help to ensure performance, security, easy manageability and cost-effectiveness. They also deliver up to 80% lower TCO over their long lifecycle compared with a standard PC. Plus, ease-of-use, standardization and quiet operation ensure maximum user comfort.

■ Smart Devices

Fujitsu offers a diverse lineup of smart devices that can be tailored to customer needs. Fujitsu's smartphones and tablets are equipped with proprietary human centric technology that enables ultimate connectivity and smart functions for daily lives, such as 4G/LTE connectivity and intuitive touch-panel operation, and other features.

■ Peripheral Devices

Fujitsu provides a comprehensive array of displays and accessories to make life easier and more enjoyable. The comprehensive Fujitsu Display portfolio covers every usage environment and application.
These displays deliver an unrivalled combination of innovative technologies for best usability, picture performance, connectivity and energy efficiency. From printer, accessories or scanner products – whatever you need, Fujitsu's range of peripherals will provide it.

Solutions

Infrastructure Solutions

■ Virtual Client Computing

Desktop virtualization helps to improve service quality and security, increase flexibility, and reduce costs. Fujitsu provides desktop virtualization solutions based on best-in-class virtualization technologies, proven infrastructure products, and end-to-end lifecycle services from a single source. Customers benefit from rapid implementation and reduced risk resulting from Fujitsu's extensive project experience.

Note: Availability featured here may differ by region.

Creative Intelligence

New Value from Information

Realize innovation by creating new knowledge from information with advanced technology and analytical expertise

Creating knowledge from Big Data

Demand for using Big Data is rapidly increasing because of sharp growth in the performance of hardware, the evolution of software technology in handling large volumes of data, the development of sensors, and the rise of social and consumer oriented applications. Fujitsu helps our customers harness Big Data by providing advanced analytics technology and cutting-edge technologies such as ultrafast parallel processing, complex event processing and in-memory processing.

Marketing innovation

To respond to diversified consumer lifestyles and growing complexity in marketing channels, the approach to customers has to be changed from market segmentation to personalized marketing. It is now critical to understand the preferences of individual consumers.

Fujitsu offers personalized marketing solutions for the retail and service industries. One example is the consumer preference analysis service to parse out consumer purchasing contexts from the characteristics of purchased products. Another example is a service for predicting the visit of an individual customer and distributing personalized coupons to grow repeat business and the purchase value per customer. Fujitsu and Dentsu, the world-leading advertising agency, collaborated in providing a consulting framework that establishes a deeper engagement for a better customer experience. The framework begins with combining diverse data from customers' products, services and sales activities, with Dentsu's marketing data such as consumer behavior. Then, Fujitsu's Big Data analytics technology helps identify the customer profiles and any issues at customer touch points, which cannot be achieved through traditional segmentation analysis. These can be reflected in the marketing measures to improve overall customer experience in omni-channels.

Innovation for decision-making

Big Data is expected to transform the corporate decision-making process, enhance employee productivity and optimize business processes. However, several issues prohibit customers from introducing Big Data. Customers have to introduce the latest database and data processing technologies. It is also difficult to define system requirements and measure Return on investment (ROI). A Fujitsu integrated solution, 'FUJITSU Business Application Operation Data Management & Analytics (ODMA)' solves these challenges by enabling swift system installation and the use of Big Data. ODMA realizes a significantly shorter set-up time by integrating all the software necessary for analytics as one package. Fujitsu provides our know-how, established through delivering information management systems, through three marketing models: a demand forecasting model, a consumer behavior analysis model and a financial analysis model. These models allow even organizations not familiar with data analysis to use the ODMA. In the future, Fujitsu plans to introduce these solutions to broader industries and business fields.

Further, Fujitsu will offer Big Data solutions in the field of IoT. For example, we will enable predictive maintenance and other manufacturing innovations by monitoring the status of equipment and machinery via embedded sensors.

Services, Products and Solutions

Services

Business Services

■ Business Consulting

■ **Big Data Consulting Services**
Fujitsu's Big Data Consulting Services are designed to identify the opportunities and implications of Big Data for the business. Business- and customer-specific use cases, and their business implications and value will be jointly elaborated and prioritized. Fujitsu supports the development of Big Data strategies and detailed evaluation of required capabilities and technologies.
Business and IT prerequisites to achieve the business goals will be made transparent.

■ **Analytics Services**
We help customers formulate, develop, and implement Big Data use cases. Our services help to reduce skill gaps to quickly implement new Big Data analytics workflows and accelerate the delivery of valuable insight to the business.

Application Services

■ Application Development and Integration

■ **Integration Services and Maintenance Services**
Big Data infrastructure solutions are typically combinations of concepts and technologies. Fujitsu Integration Services ensure a smooth and efficient integration of all building blocks, as well as the integration of the overall solution into the customer's IT landscape. In addition, Fujitsu will take over the maintenance of the overall solution.

■ Software as a Service

Fujitsu offers a wide range of packaged applications as subscription-based services. (For a full description of 'Software as a Service' and offerings, please see the 'On-demand Everything' section on page 43.)

■ Platform as a Service

Our long term vision for PaaS is to gather all of the necessary capabilities together in one high productivity business platform. (For a full description of 'Platform as a Service' and offerings, please see the 'On-demand Everything' section on page 43.)

Managed Infrastructure Services

Fujitsu's Managed Infrastructure Services for Big Data comprise the complete range of services to ensure our customers' IT systems are fully operational while improving their flexibility, efficiency, performance and reducing costs.

Products

Software

Fujitsu provides a systematic lineup of software products designed to facilitate the use of Big Data. This lineup features software products that customers can easily use on-site. Fujitsu has developed, through implementation of Platform Services for Data Utilization, a cloud service for utilizing Big Data. In addition, we have helped customers utilize Big Data by making it simple to install and operate, and by providing an ecosystem that makes it easy for customers to combine software with other products including open-source software.

■ Middleware

- **FUJITSU Software Interstage Big Data Parallel Processing Server**
- **FUJITSU Software Interstage Big Data Complex Event Processing Server**
- **FUJITSU Software Interstage Terracotta BigMemory**
- **FUJITSU Software Symfoware Analytics Server**

Integrated Systems

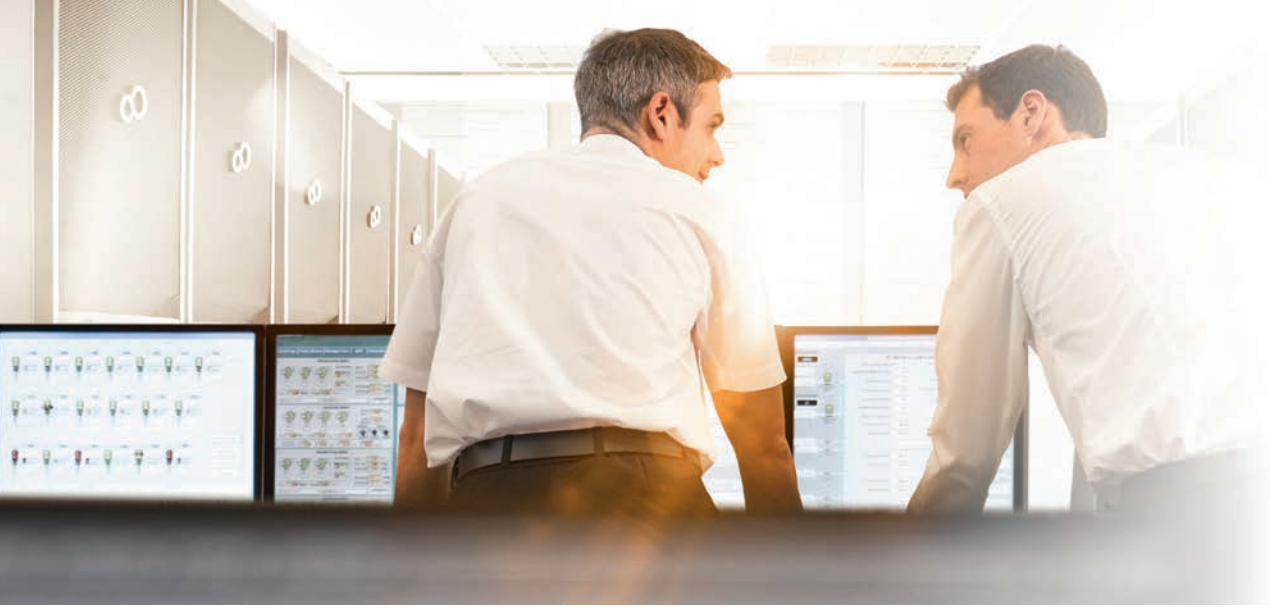
Under the name of FUJITSU Integrated System PRIMEFLEX, Fujitsu provides a broad lineup of Integrated Systems for customer's marketing innovation. (For a full description, please see the 'Integrated Computing' section on page 46.)

■ Big Data and Analytics

■ **FUJITSU Integrated System PRIMEFLEX for Hadoop**
PRIMEFLEX for Hadoop is a powerful and scalable platform analyzing Big Data volumes at high velocity. PRIMEFLEX for Hadoop combines the advantages of pre-configured and pre-tested hardware based on industry standard components with open source-software provided by Cloudera and Big Data analytics software provided by Datameer. PRIMEFLEX for Hadoop is provided as a ready-to-run integrated system and enables business users to untap hidden information from huge amounts of data. In addition, strategic Big Data consulting, analytics consulting, consulting for Hadoop, and integration and maintenance services, are supplementing the offering.

■ **FUJITSU Integrated System PRIMEFLEX for SAP HANA**
PRIMEFLEX for SAP HANA enables simplified, fast and secure implementation and operation of SAP HANA. The pre-defined and pre-tested infrastructure solution is based on SAP-certified components and supplemented by a broad services portfolio. It helps customers fully exploit the potential of SAP HANA and to accelerate and innovate their business processes.

Note: Availability featured here may differ by region.



Creative Intelligence
Security

Realize a safe and secure business and ICT environment with best practice from our in-house experiences

Incidents will happen

As business becomes more digitalized, security is ever more important. Since 2009 incidents have increased by 66% a year, with 43 million cases in 2014 alone.* As attacks become more sophisticated, incidents are getting more complex. Traditional protection alone is no longer enough to protect your ICT resources from threats. We need to do more than just improve our defenses. We must take proactive security measures to provide us real transparency, so we identify weak points and detect threats before they cause harm.

Three pillars of secure information use

We believe there are three pillars to an effective security strategy that can respond to these growing threats and safeguard ICT environments for the future.

Authentication and authorization:

The more contact people have with ICT, the harder it gets to ensure safety with conventional passwords. Here, authentication with biometrics strikes a good balance between convenience and safety. Fujitsu's PalmSecure provides highly reliable biometric authentication based on palm vein pattern recognition technology. 410,000 units of PalmSecure are used by businesses worldwide, in bank ATMs, access control, computer logins, and more. (as of end of March, 2014) Fujitsu is currently working on cloud-based biometric authentication to expand applications to social infrastructure services and other sectors in the future.

Data and privacy protection:

In order to create value from personal data, the data must remain private. Group-based anonymization allows the combination of multiple database entries while preventing identification of individuals. Homomorphic encryption can perform searches and calculations on encrypted data without decryption. Identity federation allows services to exchange personal attributes safety. These technologies will allow us to draw value from data by sharing between multiple services while properly protecting data privacy.

Security intelligence:

In order to implement security measures, a structure must be built which can quickly sense the signs of possible security incidents in your organization, address the threat promptly, and limit damages. Fujitsu has teamed up with external organizations to advance measures to monitor and analyze security incidents occurring all over the world and deal with them proactively. We also share information relating to security activities across organizations in Japan, Europe, and Americas, to build a knowledge base, which is used for managing the systems of our customers across the globe.

Security is a critical issue for today's business. To provide security requires expertise, experience and continuous organizational efforts. Fujitsu provides customers with the best of our technology and knowledge to help business grow.

*PWC 'Global State of Information Security Survey', 2015

Services, Products and Solutions

Services

Application Services

■ Information Management

■ Cyber Security Services

In today's world of dynamic and mobile computing, advanced and rapidly changing threats, and other challenges such as Big Data and cloud all becoming much more common the reactive approach to Cyber Security is no longer enough. Businesses need to become more proactive in how they deal with security and it's the joining up of things such as context, intelligence feeds and better visibility that help that happen. To keep up with the aggressive pace of change within IT, and to counter the ever expanding threat landscape business have got to evolve their security capabilities.
The strength of our vendor relationships, proven experience and global scale means we can optimize our customers' approach to security, delivering significant costs savings. We provide organizations with real intelligence and visibility on the state of their environment – identifying vulnerabilities and allowing investment to be prioritized according to where it is needed most.
Fujitsu's goal is to enable organizations to operate as productively and securely as possible. It may mean ensuring secure access to information on an anytime, any location basis; providing rapid visibility and protection against new threats; or allowing controlled usage of social media.

Fujitsu's security professionals serve as trusted advisors to customers – offering independent advice. Fujitsu also takes responsibility for the ongoing management of specific security capabilities on behalf of customers. We use market leading security products and expert professional services to support the assessment of risk, define requirements, provide technical and service design and architecture, as well as ensuring effective deployment and operation of the Managed Security Service. All our services give customers the 24x7 cover needed to protect their business.

- Firewalls
- Endpoint Security
- Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS)
- Security Information and Event Management (SIEM)
- Web Security
- Email Security
- Data Loss Prevention
- Vulnerability Management
- Encryption
- VPN

■ Enterprise Applications

Fujitsu's Enterprise Applications services cover the design, development, configuration, implementation, rollout and ongoing management of solutions based on packaged ERP applications. (For a full description, please see the 'Create Value through Integration' section on page 33.)

■ Software as a Service

Fujitsu offers a wide range of packaged applications as subscription-based services. (For a full description of 'Software as a Service' and offerings, please see the 'On-demand Everything' section on page 43.)

■ Data Center Services

Fujitsu's Data Center Services provide our customers with the complete range of services to ensure their IT systems are fully operational for their users as well as to improve their IT flexibility, efficiency, performance and to reduce their costs. (For a full description, please see the 'Create Value through Integration' section on page 33.)

■ End User Services (EUS)

Fujitsu's End User Services are for organizations who want to securely access their workplace data and services on any device in any location. EUS underpins business agility and delivers business value while reducing the costs to business, and improving the user experience. (For a full description, please see the 'Create Value through Integration' section on page 33.)

Solutions

Business and Technology Solutions

■ Security Solutions

Having a secure IT environment is becoming more and more important. With continual advancements in technology and innovation, confidential business information is at a higher risk of exposure. Understanding that mobility and connectivity are a part of today's business environment, Fujitsu takes a focused approach to ensuring security around all of our solutions. The combination of Fujitsu's user security expertise and partnerships with leading security vendors, ensures superior security. Fujitsu's extensive range of user security products and solutions are easy to integrate and can be enhanced with complementary software and hardware offerings to meet unique user security requirements. Two prominent solution examples for authentication / identity management and compliant archiving are described as follows.

■ FUJITSU Biometric Authentication Solution PalmSecure

Fujitsu's Authentication / ID Management solutions are based on Fujitsu's biometric palm vein technology and provide high reliability and security for a wide range of applications and market segments. This hygienic, contact-less technology uses unique vascular patterns as personal identification data, which is more reliable than token or knowledge-based methods, increasing user safety and comfort. PalmSecure bioLock significantly improves security by monitoring and controlling SAP system operations using re-authentication at user-specific checkpoints. PalmSecure ID Match is a universal platform for reinforcing ID cards for authentication by combining them with PalmSecure technology. This new solution is designed for a wide range of scenarios - supported by our Software Development Kit (SDK), which allows fast and easy integration within IAM applications.
Truedentity middleware can be used as an enhancement for human centric authentication management – based on personalized encrypted certificates, superior security for handling electronic identities and secure transfer of data - providing reliable identification for people and organizations who share information.
New mobile workplace systems with integrated PalmSecure technology increase security dramatically. The combination of PalmSecure technology based on Match-on-Device solutions and high level security software is ideal for secured cloud access and secure payment applications. Fujitsu's PalmSecure offers customers end-to-end protection for sensitive information and secure access points for front end and data center applications.

■ FUJITSU Compliant Archiving Solution SecDocs

Fujitsu SecDocs maintains the same value for electronic documents as paper documents to legally safeguard businesses. This solution is an open standards-based archiving middleware and permanently protects electronic documents, guaranteeing consistency and originality for over 100 years. SecDocs is a modular client-specific system, developed for commonly used operating systems and can be quickly integrated into heterogeneous and dynamic IT- environments. SecDocs complies with the BSI TR 03125 for confidential electronic long-term storage and is certified to ISO/IEC 15408 (Common Criteria EAL 4+).
In addition, FUJITSU Secure Mailroom, an input management system for Fujitsu scanners, supports large document management and/or migration from paper archives to a trusted electronic archive.

Note: Availability featured here may differ by region.

Connected Infrastructure
On-demand Everything

Fujitsu supports customer's digital transformation with cloud technologies and services

Next-generation cloud in the hyperconnected era

In a hyperconnected world, new value is created by linking organizations and services through open application programming interfaces (APIs). This is an API economy and it will use cloud as a business platform. Fujitsu is driving an initiative to create a digital business platform. This will be based on the next-generation cloud system, which combines Fujitsu's know-how in technology and service integration with the latest open technologies. We believe that integration, trust and global reach are the three most important characteristics for the cloud, in order to support business and societies in the hyperconnected era. Fujitsu is confident that we can fulfill these characteristics leveraging our experience across many integration projects for mission critical business and social systems.

Optimized usage of cloud

The biggest value of cloud resides in the optimization of total cost of ownership (TCO) as well as agile and flexible response to changes in the business environment, essential to business growth. Fujitsu focuses on cloud integration to deliver value to customers. We have over two thousand people with extensive knowledge and expertise in cloud integration and offer services ranging from the cloud installation assessment, installation, to daily operation support. In addition, Fujitsu has enhanced our iPaas (integration Platform as a Service) cloud service for the hybrid cloud, where both SaaS and on-premises applications can be used in an optimal way. It allows customers to monitor all ICT resources under multiple cloud environments.

Trusted Cloud - Fujitsu's in-house initiatives

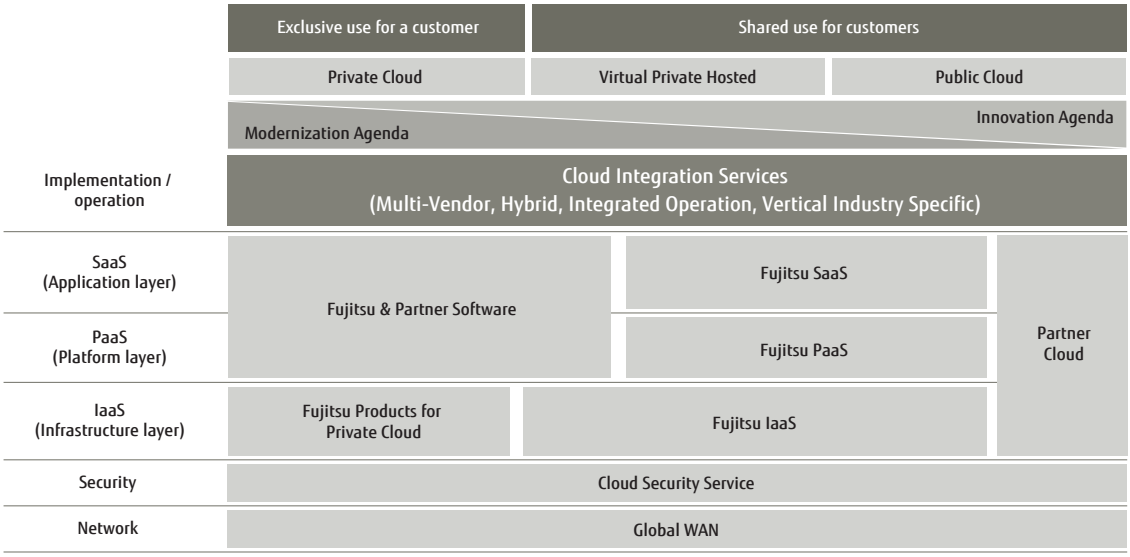
Fujitsu will connect all internal systems (approximately 640) across some 13,000 servers globally through APIs and migrate them to a new cloud system based on OpenStack. We plan to complete the migration in five years, and expect to reduce the TCO by 35 billion yen. The cloud based on Fujitsu's trusted technologies and services will become a reference for new cloud projects. We believe the experiences gained in this migration project will be of great benefit for customers undergoing cloud integration and migration.

Delivering trusted cloud globally

Fujitsu has more than 100 data centers worldwide. We have also deployed the global cloud service platform, 'FUJITSU Cloud IaaS Trusted Public S5', in Japan, Australia, Singapore, the United States, the United Kingdom and Germany, to deliver high-quality services. Our global service managers use the standardized management framework to define the cloud management process and operation of global cloud services. In addition, we offer our 'FUJITSU Cloud IaaS Private Hosted' from over 30 datacenters in 16 countries across the globe. We offer a Private Cloud solution that can be deployed on-premise or off-premise and can be managed by Fujitsu or by our customers. Fujitsu has service desks around the world to help end users. Offering worldwide support in more than 30 languages, we provide our customers with peace of mind.

FUJITSU Cloud Initiative

To respond to recent customer's needs of Cloud-First, Fujitsu will continue to expand our Services, Products, and Solutions to realize and maximize customer's value through 'FUJITSU Cloud Initiative' which is the framework concept to provide optimal solutions.



Services, Products and Solutions

Services

Application Services

■ Software as a Service

Fujitsu offers a wide range of packaged applications as subscription-based services - supported by implementation, customization and integration services - including on-demand apps for office productivity, IT management, and other key industry and enterprise applications.

■ **FUJITSU Cloud IT Management as a Service**

FUJITSU Cloud IT Management as a Service is a suite of SaaS based applications delivered by Fujitsu globally. They provide the infrastructure, application monitoring and service desk capabilities needed to underpin an efficient and cost-effective IT Management operation.

■ **FUJITSU Cloud Backup as a Service**

FUJITSU Cloud Backup as a Service replaces traditional on-site tape-based data protection solutions with one that is disk-based, agile, scalable, easy to use and secure. Delivered on-demand and pay-as-you-grow, the services include all features required of a self-service backup solution including management and reporting services via an Internet portal.
Where customers have distributed sites, network connectivity limitations or on premise data requirements, the Backup as a Service Rapid Recovery Appliance is available. The Rapid Recovery Appliance combines pre-configured hardware, storage and software to create a local backup and recovery device that can be implemented quickly, performs at LAN speeds while at the same time using the Fujitsu Cloud to provide secure cloud-based offsite protection for a secondary copy of the backup data.
All data is de-duplicated and compressed at source before being committed to the Backup as a Service Vault (the storage location for backup data on the Fujitsu Cloud or on a Rapid Recovery Appliance). Data can be encrypted at source before it is sent to the Vault, it is encrypted while in transit by default and remains encrypted when stored in the Vault therefore ensuring only the customer can access the data.

■ Platform as a Service

Our long term vision for PaaS is to gather together in one high productivity business platform all of the capabilities needed to rapidly create, integrate, distribute and monetize composite services across complex new ecosystems of platforms, devices, providers, integrators and consumers.

■ **Fujitsu Cloud PaaS RunMyProcess**

Fujitsu RunMyProcess is a unique cloud platform that enables hundreds of leading companies in over 45 countries to remove the technology barriers to digital transformation. This innovative platform empowers enterprise from large corporates to medium size, to rapidly create, deploy and distribute highly customized enterprise and mobile business applications designed to meet their specific needs - unifying user experiences, connecting information systems, accelerating time to value and enabling digital scale.

■ **FUJITSU Cloud Enablement Services**

This provides a platform with standard functions needed to build and operate a customer's SaaS, such as an enterprise app store, ID management and authentication, and subscriptions and fees. This service lets companies focus on developing and operating the applications and packages that are at the core of their business, increasing their productivity and dramatically speeding up the process of launching a SaaS by as much as a factor of six (from approximately one year to approximately two months, according to Fujitsu research).

■ **FUJITSU Cloud A5 for Microsoft Azure**

Fujitsu works with other cloud providers to ensure the optimal mix of private, public, on-premises and hosted cloud solutions is achieved. Fujitsu is the world's first Microsoft partner to be able to deliver Microsoft Azure as a cloud service. Fujitsu Hybrid Cloud Services links Microsoft Azure-based components to Windows Server-based components, running either on premises or on a Fujitsu cloud platform.

Services, Products and Solutions

Services

Managed Infrastructure Services

■ Data Center Services

Fujitsu's Data Center Services provide our customers with the complete range of services to ensure their IT systems are fully operational for their users as well as to improve their IT flexibility, efficiency, performance and to reduce their costs. (For a full description, please see the 'Create Value through Integration' section on page 33.)

■ **Managed Hosting – cloud and non-cloud systems**

We provide a range of managed hosting services to meet your specific business needs. These cover every aspect of implementation and management for your compute and storage environment, including platform and directory services, infrastructure applications and database environment. Each service offers a range of options to allow you to select the package that is right for your business.

■ Infrastructure as a Service

FUJITSU Cloud Infrastructure as a Service solutions deliver flexibility and value with the necessary high level of security and service quality expected from enterprise-class IT. To fulfill different requirements, Fujitsu has a comprehensive range of IaaS and Private Cloud solutions.

■ **FUJITSU Cloud IaaS Trusted Public S5**

Trusted Public S5 provides a pool of scalable, robust, secure and customizable, virtual IT resources, available on demand on a pay-peruse basis. Designed from the ground up with business users in mind, it delivers enterprise-grade performance with high availability. It is delivered via our global network of data centers - in Japan, Australia, USA, Singapore, UK and Germany- to provide cost-effective and secure access to on demand infrastructures.

■ **FUJITSU Cloud IaaS Private Hosted**

In accordance with geographical regulations governing where data is stored and processed, as well as a need for organizations to consider local customer sentiment, Fujitsu offers IaaS Private Hosted from over 30 Data Centers in 16 countries. This platform provides tailored services specific to regional needs and makes it an ideal solution for running your enterprise class production systems such as Microsoft, Oracle, and SAP on a pay-as-you-go basis.

■ Network and Communication

Fujitsu's Network services for inter-site communications, deliver a carrier-class network infrastructure combining cost competitiveness and security with high performance. (For a full description, please see the 'Mobility and Empowerment' section on page 37.)

■ **Global WAN Services**

Fujitsu Wide Area Network (WAN) provides global connectivity. This includes Managed WAN, Managed Virtual Private Networks, Managed Wavelength and Managed Firewall Services together with Campus LAN and Distributed LAN services.

Products

Integrated Systems

■ Private Cloud Infrastructures

Fujitsu offers a range of options for quickly building and scaling private clouds and hybrid clouds. The pre-integrated IT infrastructure solutions combine high-performance and energy-efficient hardware, a holistic operating environment, an optimized deployment service together with a comprehensive professional service portfolio to reduce complexity in design, build and operation of private cloud infrastructures.

■ **FUJITSU Integrated System PRIMEFLEX for VMware vCloud**

This solution is based on a reference architecture consisting of servers, network and storage hardware, plus VMware virtualization and management software for building an Infrastructure as a Service platform. The reference architecture leverages Fujitsu design and configuration best practices. It is optimized to reduce complexity in the design and build phase of a VMware vCloud environment – and at a significantly lower cost compared with do-it-yourself approaches.

■ **vShape**

The Solution for virtual infrastructures FUJITSU vShape is an infrastructure solution for VMware or Hyper-V environments integrating the expertise and technologies of leading manufacturers of servers, storage systems, and networks. These are PRIMERGY servers from FUJITSU, ETERNUS storage systems from FUJITSU or FAS systems from NetApp and switches from Brocade. All these components are ideally synchronized for defined software packages and validated as a single solution. vShape reduces integration and implementation time and risks of building virtual infrastructures.

■ **FUJITSU Integrated System PRIMEFLEX for VMware EVO:RAIL**

This hyper-converged offering is a complete ready-to-run solution used to operate virtual desktop infrastructures, private cloud computing or server virtualization. PRIMEFLEX for VMware EVO:RAIL comes as one unit and covers all the hardware, software and service components required for a uniform virtualization platform. Once the minor on-site preparations have been completed, the infrastructure can be used productively 15 minutes after it has been switched on for the first time. It leverages software-defined storage and includes 3 years of maintenance for all the hardware and software components using Fujitsu as a single-point-of-contact.

■ **FUJITSU Integrated System PRIMEFLEX for VMware VSAN**

PRIMEFLEX for VMware VSAN uses the local storage capabilities of FUJITSU Server PRIMERGY to achieve a logical central storage. In order to overcome complex compatibility and best-fit issues, Fujitsu has generated the pre-tested reference architecture PRIMEFLEX for VMware VSAN (cf. 'VSAN Ready Nodes'). The reference architectures are approved by Fujitsu and VMware and reduce the implementation time and risks involved in building virtualized infrastructures. Using hypervisor-converged storage, the solution provides simple, delicate and linear scalability that is unmatched.

■ **FUJITSU Integrated System PRIMEFLEX for Cloud**

PRIMEFLEX for Cloud includes a Starter Kit as an all-in-one start up solution for easy-to manage and reliable cloud infrastructure with minimum deployment effort. This pre-tested solution provides configuration templates for server, storage, network, virtualization and cloud resource management software. This will allow the customer to remove the need for complex design requirements, reduce deployment time and enable smooth transition from their traditional systems.

Note: Availability featured here may differ by region.

Connected Infrastructure
Integrated Computing

'Workload optimized autonomic computing environments' integrated with Fujitsu's technology and expertise

Computing optimized for workload

At Fujitsu, we consider workload optimization a core requirement of modern computing environments. Our customers need computing optimized to handle all business workloads: business applications, data warehouses, business intelligence (BI), and high performance computing (HPC). Making all this happen requires the right tools in the right place. It requires a convergence of open technology and our many advanced technologies, scaled up and out to fit our customers' needs. Convergences with our K computer* and other technologies have produced world class, revolutionary results.

FUJITSU Integrated System PRIMEFLEX

At the core of this solution lies the 'FUJITSU Integrated System PRIMEFLEX (hereinafter, PRIMEFLEX)', the accumulation of our many years of experience in providing integrated technology. The PRIMEFLEX dynamically integrates our high-performance hardware with software for reliable interoperability. Hardware resources such as severs, storages and networks will be virtualized as stateless resource pools, all managed automatically and precisely by intelligent software. As needed, the system will dynamically reconfigure and allocate resources for computing power to fit the nature of the application being run. Our PRIMEFLEX is on the cutting edge of technology, optimally combining agile ICT platforms with our high-performance systems. These systems change flexibly with our customers' business thereby reducing total cost of ownership over the ICT lifecycle. PRIMEFLEX is the next generation of on-premises platforms for business innovation. Fujitsu continues to expand this product range and enhance functionality.

The Organic Data Center

Fujitsu will provide portability and the integrated operation of applications in multiple system environments by combining customer's on-premises systems with Fujitsu cloud services, and by integrating multi-cloud services including third party cloud services. As a result, the customer's on-premises systems, services provided from our data center and services from the third party public clouds will be experienced as if it were a single platform. This will enable customers to develop new business innovation efficiently and without risk, by starting small to rapidly scale. Fujitsu implements a number of initiatives to optimize our computing environments for today's workloads. To this end, Fujitsu is working on optimization through integrated virtualization of computing resources and using software controls for more intelligent data centers and facilities. Fujitsu is working to provide an 'organic data center', in which multiple data centers work together flexibly over the wide-area network and optimize autonomously.

* The K computer: The supercomputer, which was jointly developed by RIKEN and Fujitsu

Services, Products and Solutions

Products

Integrated Systems

Under the name of FUJITSU Integrated System PRIMEFLEX, FUJITSU provides a broad lineup of Integrated Systems. The fact that data center components are pre-defined, pre-and pre-tested reduces the complexity and the risk of building data center infrastructures, while reducing time to production and cost, as well as increasing operational efficiency. PRIMEFLEX encompasses factory-installed solutions which are ready-to-run and reference architectures which can be easily adjusted to customer-specific requirements. Both options are supplemented by truly attractive service offerings.
PRIMEFLEX offerings are available for various data center themes such as Private Cloud, Server and Desktop Virtualization, High Availability and Disaster Recovery, Big Data and Analytics, as well as High Performance Computing. Furthermore, PRIMEFLEX includes solutions addressing SAP and Microsoft environments.

Private Cloud

- FUJITSU Integrated System PRIMEFLEX for VMware vCloud
- FUJITSU Integrated System PRIMEFLEX for VMware EVO:RAIL
- FUJITSU Integrated System PRIMEFLEX for VMware VSAN
- FUJITSU Integrated System PRIMEFLEX for Cloud

Server and Desktop Virtualization

- FUJITSU Integrated System PRIMEFLEX for VMware VSAN
- FUJITSU Integrated System PRIMEFLEX for VMware EVO:RAIL
- FUJITSU Integrated System PRIMEFLEX for VMware VDI

High Availability and Disaster Recovery

- FUJITSU Integrated System PRIMEFLEX Cluster-in-a-box
- FUJITSU Integrated System PRIMEFLEX for HA Database

Big Data and Analytics

- FUJITSU Integrated System PRIMEFLEX for Hadoop
- FUJITSU Integrated System PRIMEFLEX for SAP HANA
- FUJITSU Integrated System PRIMEFLEX for Analytics

HPC

- FUJITSU Integrated System PRIMEFLEX for HPC

SAP

- FUJITSU Integrated System PRIMEFLEX for SAP HANA
- FUJITSU Integrated System PRIMEFLEX for SAP Landscapes
- FUJITSU Integrated System PRIMEFLEX for SAP ASE

Microsoft

- FUJITSU Integrated System PRIMEFLEX for SharePoint
- FUJITSU Integrated System PRIMEFLEX for Lync
- FUJITSU Integrated System PRIMEFLEX Cluster-in-a-box
- FUJITSU Integrated System PRIMEFLEX for Exchange

Servers

The FUJITSU server line represents one of the broadest portfolios in the market. This enables us to talk with our customers as a trusted advisor with the target to provide them with the right combination of systems, solutions and know-how to guarantee maximum productivity, efficiency and flexibility, delivering confidence and reliability.

Industry Standard Server

Industry's most complete x86-based portfolio for companies of all sizes, across all industries and for any type of workload

- FUJITSU Server PRIMERGY

Mission Critical x86 Server

New levels of x86 server performance for in-memory computing, resource-intensive applications and mission-critical x86 uptime

- FUJITSU Server PRIMEQUEST

Unix Server

Unmatched scalability of up to 64 processors together with highest RAS features and a modular architecture

- FUJITSU M10 SPARC based server

Mainframe

- FUJITSU Server GS21, BS2000, VME

Supercomputer

Fujitsu's supercomputer provides the ability to address high magnitude problems by delivering over 23 petaflops, a quantum leap in processing performance.

- FUJITSU Supercomputer PRIMEHPC FX100

Storage

Under the direction 'Business-centric Storage' Fujitsu provides ETERNUS DX disk and ETERNUS DX200F All- flash systems, ETERNUS CD Hyper-scale and software defined storage, ETERNUS CS data protection appliances and ETERNUS LT tape systems enabling customers to align storage resources with business priorities and to manage their increasing data volumes at less costs of growth.

- Disk Storage Systems
  - FUJITSU Storage ETERNUS DX series
- All-flash systems
  - FUJITSU Storage ETERNUS DX200F
- Hyper-scale and software-defined storage
  - FUJITSU Storage ETERNUS CD10000
- Tape Systems
  - FUJITSU Storage ETERNUS LT series
- Data Protection Appliances
  - FUJITSU Storage ETERNUS CS series
- Storage Management Software
  - FUJITSU Storage ETERNUS SF suite

Software

Fujitsu is the only Japanese vendor with a systematic software product lineup. Fujitsu integrates optimal systems according to customer needs and objectives, based on a core lineup of proprietary technologies and products combined with supplementary partner software products and open-source software.

- BPM/SOA/XBRL
  - FUJITSU Software Interstage
- Operation Management
  - FUJITSU Software Systemwalker
- Database
  - FUJITSU Software Enterprise Postgres
  - Oracle
  - Microsoft
- Resource Management
  - FUJITSU Software ServerView Resource Orchestrator
- Hypervisor
  - Microsoft Hyper-V
  - VMware vSphere

Network

Along with in-house development of products that facilitate business continuity, security measures, and operation and management, Fujitsu can evaluate and verify third-party products. By embedding these products in networks, Fujitsu supplies optimal networks for each customer to rapidly meet their diversifying needs.

- Router
- LAN Switch
- Security
- Bandwidth Control, Load Balancer
- IP Telephony
- Unified Communication

Product Support Services

In addition to cutting-edge products, Fujitsu delivers worldwide Product Support Services. A comprehensive product support portfolio containing standard break/fix services as well as proactive support helps our customers save time and money and reduces the burden on internal IT staff.
Fujitsu delivers Product Support Services through certified support engineers for individual products as well as for IT infrastructures as a 'one-stop shop' support offering. The services range from installing new products to providing fast and responsive support for Fujitsu hardware, software and IT infrastructures for solution business.

Note: Availability featured here may differ by region.

Connected Infrastructure
Network-wide Optimization

End-to-end optimization of the whole ICT infrastructure leveraging FUJITSU Intelligent Networking and Computing Architecture (FINCA)

Software-Defined Connected Infrastructure (SDCI)

Fujitsu believes that future computing environments will be evolved into virtualized and distributed computing nodes connected across networks. The physical layer of computing nodes will be virtualized and managed and controlled optimally by intelligent software. Fujitsu calls this future vision for networking and computing infrastructure 'Software-Defined Connected Infrastructure'. To realize this vision we have developed an architecture we call 'FUJITSU Intelligent Networking and Computing Architecture'.

FINCA: the SDCI architecture

In FINCA, ICT is categorized into three areas based on the characteristics and requirements: data centers, WANs and smart devices. It is managed by separating each area into two layers: a virtual infrastructure and distributed service platform. This architecture enables the optimized and dynamic control of all ICT resources in response to the customers' business changes and service level requirements. As a result, customers can enjoy optimized services on-demand, anywhere and anytime, with improved quality of experience (QoE). Network operators can see end-to-end service quality and performance from datacenters to smart devices, and predict any network issues in advance, realizing a highly reliable and high quality network operation.

Integrating FINCA technologies to develop Network Functions Virtualization

With the advances in virtualization technologies, a new architecture called Network Functions Virtualization (NFV) has emerged. NFV virtualizes routers, switches and firewall on an industry-standard server, combined with software-defined networking technology to provide a real-time view of the entire network service. The FINCA architecture covers WANs as well as data centers. Fujitsu can realize NFV by integrating and optimizing the technologies in computing and networking.

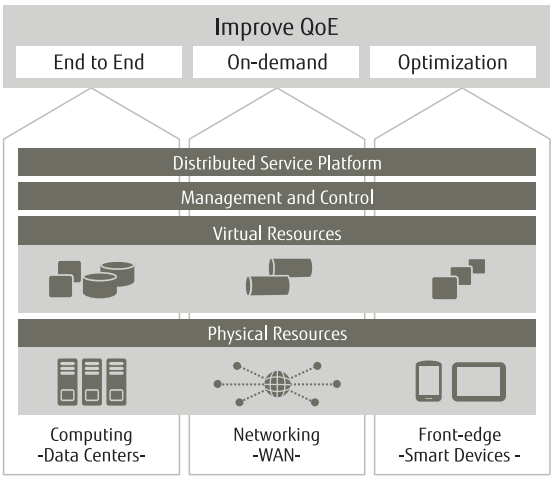
Network-wide Optimization

Based on the FINCA architecture, Fujitsu has provided three products respectively for data center and WANs. In 2015, we plan to release a range of NFV products. In the second half of 2015, products in the smart device category will be introduced to realize end-to-end optimization of the total network from datacenters and WANs to smart devices.

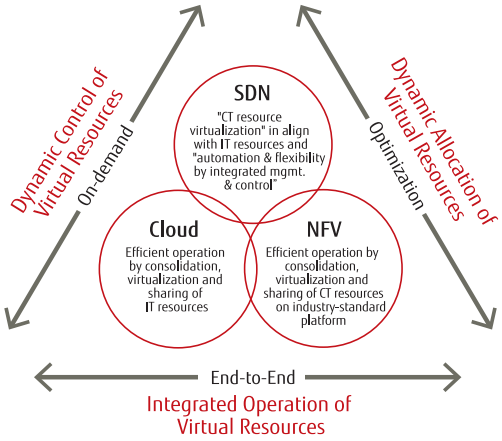
FUJITSU Intelligent Networking and Computing Architecture

Fujitsu has proposed the 'FUJITSU Intelligent Networking and Computing Architecture' as a new architecture for next-generation ICT infrastructure. In alignment, Fujitsu plans to release products that will conform to this architecture across various areas of technology.

Fujitsu Intelligent Networking and Computing Architecture



Technology Map for Network-wide Optimization



Services, Products and Solutions

Services

Managed Infrastructure Services

Fujitsu's Managed Infrastructure Services provides a cost effective, reliable and flexible ICT infrastructure to customers. This infrastructure may be owned by the customer or Fujitsu on their behalf. Our services comprise Data Center Services, End User Services, Service Desk, Technical & Maintenance Services, Infrastructure as a Service, and Network and Communication.

■ Network and Communications

Fujitsu's network services for inter-site communications, deliver a carrier-class network infrastructure combining cost competitiveness and security with high performance. (For a full description, please see the 'Mobility and Empowerment')

■ **Global WAN Services**

Fujitsu Wide Area Network (WAN) provides global connectivity. This includes Managed WAN, Managed Virtual Private Networks, Managed Wavelength and Managed Firewall Services together with Campus LAN Distributed LAN services.

Products

Software

The penetration of broadband networks has led to an increase of digitized data flowing through networks. As a result, a variety of services are now provided over networks, such as IP telephony and video distribution services. As next-generation networks become increasingly important to society, network infrastructure has become large and complex. This has created a host of crucial issues for service providers. Issues include network operation and management and problem resolution methods, in addition to quality assurance for network services and infrastructure operation and management. To solve these issues, Fujitsu provides network service management software that enables operation and management and quality assurance for next-generation networks.

■ Network Service Management Software for Telecom Carrier

- FUJITSU Network Proactnes series
- FUJITSU Network Netsmart series

■ Network Service Management Software for Enterprise

■ Dynamic Resource Management Software

- FUJITSU Software ServerView Resource Orchestrator

■ Network Operation and Management Software

- FUJITSU Software Systemwalker Network Manager
- FUJITSU Software Systemwalker Network Assist

■ Network Service Management Software

- FUJITSU Software Systemwalker Service Quality Coordinator

Network

Fujitsu supplies a comprehensive range of network products, including communications systems for carriers and network devices for enterprises. The former constitutes the backbone of our ICT-driven society, such as core networks, metro networks, and access networks. The latter is used to integrate internal networks within enterprises.

■ SDN/NFV related Software

- FUJITSU Network Virtuora series

■ Carrier Router

- Fujitsu and Cisco CSR series
- Fujitsu and Cisco XR12000 series

■ Optical Network System

- FUJITSU Network FLASHWAVE series

■ Radio Access Network System

- FUJITSU Network BroadOne series
- FUJITSU Network FRX series

■ Router
■ LAN Switch
■ Security
■ Bandwidth Control
■ Load Balancer
■ IP Telephony
■ Unified Communication

Note: Availability featured here may differ by region.

FUJITSU LIMITED

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