

shaping tomorrow with you



LOT1 - Servers

Case Studies:

University of Warwick

Queen's University Belfast

Keele University

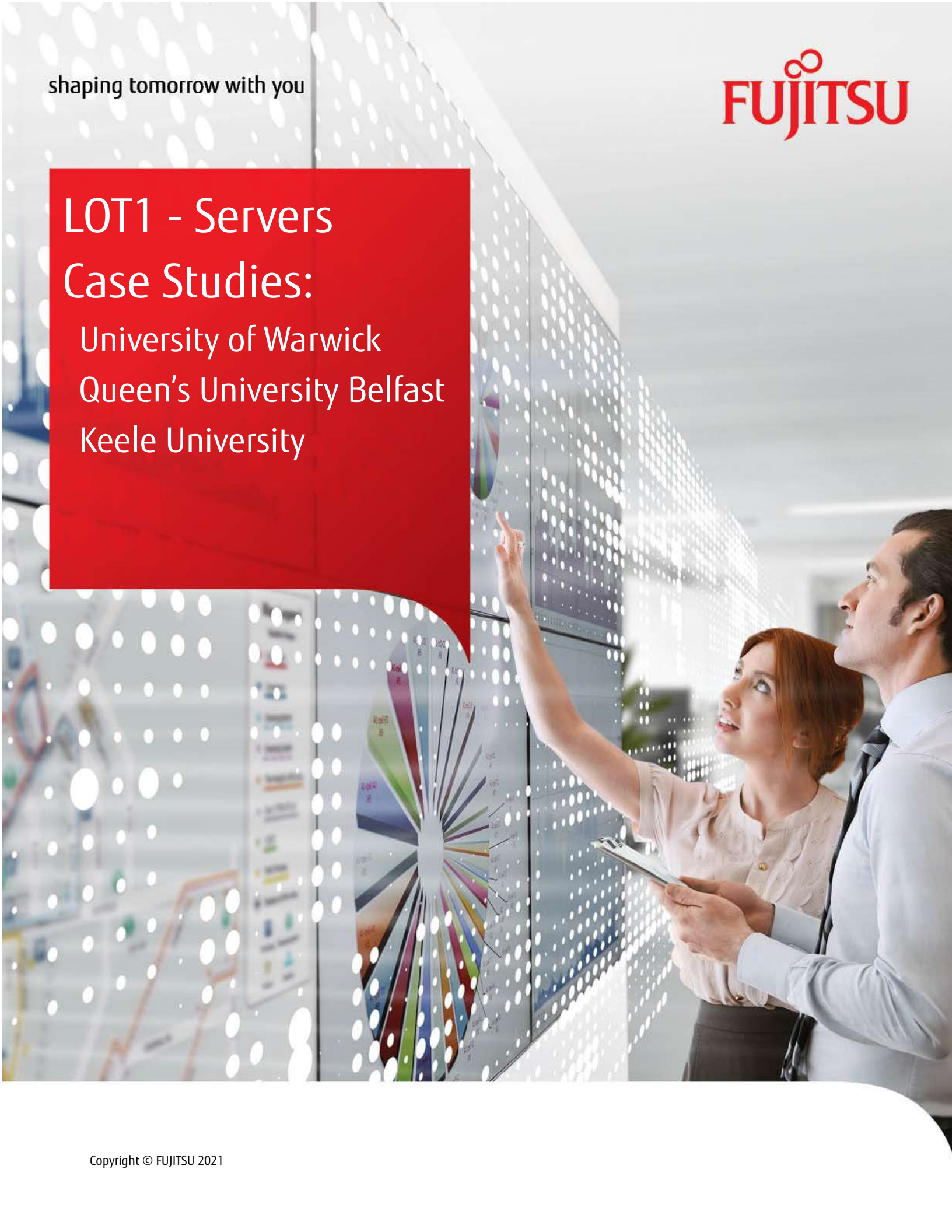


TABLE OF CONTENT

I.	Introduction	2
II.	Project data synopsis	3
1.	Entities Involved and respective Roles in the Project.....	3
2.	Project name and geographical location.....	3
3.	Project Timeframe	3
III.	Description of the solution provided, technology deployed and warranty terms.....	4
1.	PROJECT MANAGEMENT	6
2.	DESIGN METHOD	6
3.	RISK MANAGEMENT	7
4.	CLIENT LIAISON.....	7
5.	COST MANAGEMENT	8

I. INTRODUCTION

In reviewing our reference library and our business within the Education sector, we have selected three recent wins at University of Warwick, Queen's University Belfast, and Keele University where we have supplied servers to each of these universities in order to demonstrate to you that we have the skills and capabilities to deliver against Lot 1 within the Framework. We have structured our response to cover the areas that you need information.

In selecting partners to work with on the SSSNA Framework, Fujitsu ensure that their Design and Project Management methodologies are in line with ours, such that as an OEM we are assured that our partners can deliver to the same standards as if it was Fujitsu delivering the project.

Background and requirements

Each of these universities were looking for a supplier who could meet their requirements in terms of

- A resilient Server solution capable in terms of capacity, availability, and performance of supporting the teaching, learning and research activities of the universities
- A server solution that would be supported up to 5 years
- A server solution that could deliver an efficient and cost-effective solution that would meet and/or exceed user expectation, improve the performance, security, and resilience of the universities' data centre infrastructure
- Providing a robust and resilient enterprise compute that is configured correctly to requirements of each institution
- Providing sufficient capacity for growth in terms of compute processing for 5 years
- Providing sufficient performance capacity
- Resilience against failure on critical services
- Capable of providing cost effective scaling out where required
- Suitable design, installation, and support services against an anticipated server system requirement for 5 years.

In each case Fujitsu's PRIMERGY server range met these requirements, as detailed in the cases below.

II. PROJECT DATA SYNOPSIS

1. ENTITIES INVOLVED AND RESPECTIVE ROLES IN THE PROJECT

- University of Warwick - This project was conducted by the partnership of Fujitsu Services Limited and its partner OCF.
- Queen's University Belfast - This project was conducted by Fujitsu Services Limited.
- Keele University - This project was conducted by the partnership of Fujitsu Services Limited and its partner Insight UK.

For a more detailed description of the role distribution between each of the parties in the project, please refer to the Section III further on.

2. PROJECT NAME AND GEOGRAPHICAL LOCATION

- University of Warwick - The Project Scientific Computing Research Technology Platform was contracted with University of Warwick for the delivery of infrastructure and services in Warwick.
- Queen's University Belfast - The Replacement of Virtual Host Servers, was contracted with Queen's University Belfast, in Belfast, Northern Ireland.
- Keele University - The Supply of Servers was contracted with University of Keele for Data Centre refreshes at multiple sites in Staffordshire.

3. PROJECT TIMEFRAME

- University of Warwick - The project started in September 2020 and was completed in July 2021.
- Queen's University Belfast - The project started in February 2021 and ended in July 2021.
- Keele University - There have been 4 projects for Keele University since 2018 with the latest project completing in March 2021.

III. DESCRIPTION OF THE SOLUTION PROVIDED, TECHNOLOGY DEPLOYED AND WARRANTY TERMS

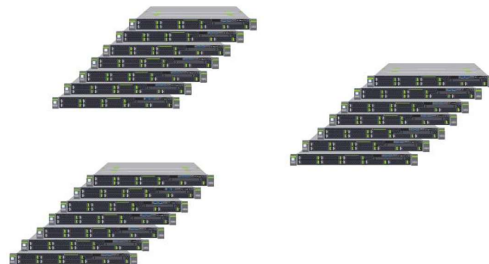
Warwick University

The Scientific Computing Research Technology Platform (SC RTP), University of Warwick, is an academic research computing facility specialising in High Performance Computing (HPC), research data storage and the development and support of research software.

In May 2021 SC RTP had a requirement to purchase a number of compute nodes (servers); the nodes making up a hardware refresh of an existing taskfarm facility aimed at high-throughput computing for serial or single-node jobs. The equipment was to be hosted by the SC RTP within a dedicated on site data centre.

The compute nodes were procured on a hardware-only basis; they were integrated in-house to an existing taskfarm setup therefore only the compute node hardware was required, i.e., there was no need for any interconnect, network, shared storage, management infrastructure or system integration services.

21 x RX2530 M5 Servers for
University of Warwick SC RTP



Through our partner OCF we supplied 21 PRIMERGY RX2530 M5 servers with Intel Xeon Gold 6248R processor and 192GB memory. The warranty on the servers was for 4 years On-Site Service, 24x7, with a 4-hour onsite response.

Queen's University Belfast (QUB)

The Northern Ireland Cancer Registry at QUB had a small internal network with approximately 40 users and two RX servers that were approaching end-of-life. The servers run server VM workload using VMware ESXi and operate independently with little or no resiliency.

In February 2021 QUB wanted to replace these and requested Fujitsu to prepare three options for their consideration. The VM workload is a mixed workload of application servers, SQL, Domain Controllers, and File servers amounting to a total of 10 VMs.

The requirements of the solution were that

- It must not be overly complicated or prohibitively expensive
- It must be capable of running 4-6 VMs per host
- It had sufficient space and memory resource to allow expansion over the next number of years
- Software licenses are covered by the University and are not required as part of the solution
- The Registry was consider deploying Hyper-V instead of VMware
- Disk retention was required
- Support for 3 years with 9x5xNBD response

Fujitsu prepared three quotes

- Option 1 – Like-for-like hardware refresh
- Option 2 – 2-node optimised Primeflex for MAS HCI
- Option 3 – 3 node Nutanix ROBO cluster

QUB selected option 1, as the most suitable for their budget and requirements. The solution consisted of

- 2 PRIMERGY RX2540 M5 12x3.5'
- Each node is dual processor with Intel Silver 4214R 12C 2.4Ghz processors
- RAM has been uplifted to 64GB per node
- 2 x 960GB SSD and 8 x 4TB HDD for storage
- M.2 240Gb SSD installed with VMware ESXi 7.0 U1
- Optional Extreme Edge Switch X440-G2 with 24 ports 10/100/1000BASE-T (RJ45), 4 SFP combo ports upgradeable to 10Gbps
- 3 years 9x5 Next Business Day Hardware support

Keele University

Keele University which is our reference in Lot3 began in 2018 with the supply of eight PRIMERGY RX2540 M4 servers (as well as an ETERNUS DX100 S4 storage array) with 5 years On-Site Service, 9x5, 4h onsite response warranty support through our partner Insight UK. We have continued to supply servers to Keele University

- In May 2019 we supplied two PRIMERGY RX2530 servers for Keele University's Medical Sciences data centre
- In June 2020 we supplied four PRIMERGY RX2530 servers for the second data centre replacement solution
- And in March 2021 we supplied a further two RX2540 PRIMERGY servers as part of a backup solution that also included 4x ETERNUS JX40 storage arrays.

Our ability to supply servers of the quality and at the price point wanted, meant that Keele University started to ask us what else could we supply and invited us in to discuss our wider portfolio of solutions and products. This relationship has now developed to the recent tender award for a HCI Nutanix solution which is based on two clusters of 3x XF3070-M2 servers with Intel Xeon Silver 4210R 10 Cores (for further details please refer to Lot3).

Fujitsu can extend both the term (up to maximum of 5 years) or uplift the Service Level as required (for example to '4hour Response').

When considering requests for extended warranty Fujitsu considers:

- The End of Support Life (EOSL) date, which is 5 years from the last sale i.e., End of Sales (EOS) date. Fujitsu can offer support up to the End of Support Life date and this is a standard process. When support is required beyond the EOSL date, Fujitsu has to consider the availability of spares, as when systems are no longer manufactured the availability of spares reduces as they are not replaced. If a customer is planning a tech refresh of the equipment, and requires Fujitsu to support the equipment being replaced, this will influence the decision to offer extended support. If the customer gives Fujitsu sufficient advanced warning of needing extended support beyond the EOSL date, Fujitsu can investigate whether it can do a 'last time buy' of spares for the particular configuration and ring fence it for that customer use only (at additional cost).

- Uplift to on-on-site response and improved time to fix depend mainly on location, in relation to where spares are located and the availability of suitably qualified engineers.

Design and Deployment Approach

In selecting partners to work with on the SSSNA Framework, Fujitsu ensure that their Design and Project Management methodologies are in line with ours, such that as an OEM we are assured that our partners can deliver to the same standards as if it was Fujitsu delivering the project.

This section covers the

1. Project management
2. Design Method
3. Risk Management
4. Customer liaison
5. Cost management

1. PROJECT MANAGEMENT

Fujitsu's standard methodologies are based upon industry best practice guidelines. These in combination with our own extensive experience form the basis of our Manage Project, Manage Programme and Manage Risk processes. Together these form constituent elements of our overall ISO9001:2008 assured Business Management System (BMS).

The 'Manage Project' processes are defined for use by all Fujitsu projects, irrespective of project size and nature of deliverables, and incorporate a comprehensive set of PM tools including detailed procedures, templates, and tools.

2. DESIGN METHOD

Fujitsu Infrastructure Design Methodology (IDM) is an element of Fujitsu's set of integrated solution methods. These solution methods form a core element of the Fujitsu Business Management System (EBMS) and are designed to be compliant with ISO/IEC20000-1.

IDM has been developed from the breadth of our experience delivering infrastructure solutions for our customers spanning more than forty years.

IDM outlines good practices and outputs for each stage, identifies critical activities which need to take place during each stage as well as the gateway criteria for moving between stages. It covers the end-to-end process required to provide an infrastructure solution from original requirements through design and build to testing to ongoing support.

The design method stages are as follows

- The design stage which covers preparation for implementation, operational running, and testing
- The develop stage builds the defined solution in a controlled environment and the development of any associated implementation guides
- The deliver stage is where the solution is implemented and tested. This will be a joint activity with the customer's IT team who will be responsible for the ongoing support and operation of the solution. This ensures that validation of the solution is satisfactory and will allow for knowledge transfer of the solution.

Verification and validation are ongoing activities through the 'design and develop' and into the 'deliver' stages of the overall project of the designed Solution. Verification ensures that the final solution 'can be built right' whilst validation ensures that 'the right solution is built' and meets the requirements. The output is captured in a User Acceptance Test (UAT) document that documents the testing that was agreed and the outcome of the tests.

The deliverables from the Design method are

- The High-Level Design (HLD) document that details all the Functional and non-functional requirements and how they are to be addressed, the design decisions made, and any Risks, Assumptions, Issues and Dependencies that exist, which will be worked through as the project progresses. The HLD will be agreed and signed off by the customer before proceeding to a Low-Level Design (LLD)
- The Low-Level Design details the configuration of the solution and information needed to implement the solution
- Operational handover training for administrative staff. This typically occurs inline through the deployment in a hands-on fashion. It is not a substitute for a formal training programme.

3. RISK MANAGEMENT

The Fujitsu Manage Risk Process, which is mandatory throughout the lifecycle from the bid stage until closure of the contract, defines the steps (Initiate, Identify, Analyse, Plan and Manage) that every bid or contract is to progress through to ensure the appropriate management of risk. It is mandatory that a Risk Plan is produced and updated throughout the life of the project or service.

The process and supporting tools are derived from best of breed, including the APM (Association for Project Management) Risk SIG PRAM Guide and awareness of the International Standard (ISO31000:2009) Risk Management Principles and Guidelines.

The risk plan starts during the tender stage where the bid team would have identified and classified risk in Technical, Legal and Commercial and Finance aspects of the proposal. These are captured as follows:

- Clarity of objectives (i.e., understanding what is at risk)
- Understanding of the environment in which the project or service will take place
- Prioritisation of risks
- Identifying and carrying out appropriate containment
- Planning and timely invocation of fallback
- Appropriate Escalation.

The Risk Plan then moves from the bid stage through to the delivery project and the risks (as well as the assumptions, issues, and dependencies) are review and determined what action was needed or what information became available to de-scope the risk or to manage the risk such that the project and solution are not compromised.

4. CLIENT LIAISON

The communication management strategy is agreed at the project kick off meeting. This meeting has representatives from the customer, Fujitsu and its partner and is a vital part of keeping all parties informed throughout the lifetime of the project.

Throughout the project lifecycle various forms of communication will be used and it is important that the PM is kept in the loop on such communications including but not limited to:

- Verbal discussions - Will take place as the project progresses, primarily on a one-to-one basis between project resources and outside of formal meetings. If any formal decisions are made in one-to-one discussions the project manager must be informed in writing (Email)
- Email – This would be the preferred choice of communication throughout the day-to-day communication on the project. Any important information should be recorded on email to the PM for future reference and to allow the whole project team to be up to speed at all times
- Stage Meetings – Throughout the project formal meetings may be called to discuss issues, risks and changes that are outside of the agreed tolerances. For all such meetings, minutes and actions will be circulated by the PM to all team members and also added to the project documentation
- Reports – Each stage of the project will be reviewed and the necessary information, including the updated project plan and any relevant issues or risks or change requests, will be communicated to all parties via an end of stage report, which could take the form of an update email for smaller projects or a more formal report for more complex projects.
- The project manager will ensure all decisions are recorded in the relevant documentation and provide feedback to the project team when necessary.

5. COST MANAGEMENT

The Project Manager (PM) is responsible for managing the cost for the project and is accountable to the Project Board (or equivalent) for this. The PM will flag any significant deviation of the project in terms of costs or time and will seek guidance and approval from the board before undertaking the changes.

An agreed margin of change to the project cost base will be agreed at the start of the project with the Project Board (or equivalent) to allow the PM to resolve issues and keep the project on track. If during delivery the project team identify risks or issues that mean the cost of the project will move outside the boundaries of the agreed margin the PM will escalate to the project board to assist in determining a resolution. This means that all parties are informed and consulted of any significant changes to costs.

Fujitsu and its partners have an accumulation of experience and know-how to draw upon. Fujitsu works on the principle of continuous improvement (Plan, Do, Act). We also have a lessons' learnt process that means we review what went well, what could have gone better and what would we do next time, meaning we are continually seeking ways to improve the way we deliver solutions and project to our customers.



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