Global Approach to Knowledge Sharing and Standardization for Promoting Growth in Service Business

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With the corporate DNA of a customer-oriented attitude adopted by 160,000 employees worldwide, Fujitsu globally offers services and products as an ICT vendor. Meanwhile, one issue is that we have not been able to build an adequate system for sharing knowledge and experience between employees of different countries and regions. In addition, one new solution and service concept after another is being brought to the ICT market, and these concepts need to be promptly introduced and continuously added to the set of services offered to customers. A system for doing this is also globally required. This paper presents the Service Configurator Project, Fujitsu's activity for sharing knowledge distributed between global organizations and information about excellent solutions of various regions to promote standardization. It also outlines the tool suite and service configurator that are results of the Project.

1. Introduction

As a global ICT vendor, Fujitsu is attempting to strengthen the services business and internally rolling out the Service Configurator Project (hereafter, the Project), an activity to promote standardized solutions. To carry out the Project, we analyzed the business processes and economic dynamics of large companies, and the results showed that services can be standardized most effectively at the time of their release. Because of the huge gap between standardization and the characteristic customer-oriented concept of Fujitsu's DNA, there was a need to define the types of DNA and classification system of the different service components and incorporate the content so as to effectively make information available.

For example, automakers that worked on a standardization process like this in the past have established a method that can be called an efficient and high-performance car configurator. It allows customers to easily simulate their desired cars. By using this as a reference, the Project started by defining the standard building blocks and inputting customer information, and we selected those predefined service components and created specific service components intended for new customers as required. In this way, a comprehensive tool suite has been developed that is capable of automatically obtaining results such as a checklist showing whether required services are included, accurate costs, due diligence instructions, and a transition and transformation framework.

This paper describes the Project, in which Fujitsu is working on internal standardization in the services business in particular, and the tool suite obtained in the process of the activity.

2. Classification system and content

2.1 Classification of service components

Fujitsu offers a portfolio and available capabilities adapted to the market clearly captured or defined by the Project. In order to realize a solution configuration based on proven capabilities, we linked these approaches. At the center of these are service components showing the details of capabilities.

With usability taken into account, there was a need to classify these service components. For example, a service desk as a service classification is composed of dedicated or shared services and related services. In this Project, the components were designed independently on purpose. Take, as an example, an intrusion detection service component, which is provided as a workplace service required for business solutions

in general. While there may be a specific network management department offering services, this service component definitely belongs to the security management category.

Next, we decided how to treat different phases of a service. For example, when the service in operation is available as a component and additional design and implementation phases are required, these components are put into a category of the same classification. At present, 250+ service components in 10 categories are available at Fujitsu. Underneath this simple structure is a level that provides the basis with further details of the components defined, where attribute information about the respective components is offered, such as component attribute details and detailed descriptions of the components themselves. This attribute information also includes options (approved in advance) of the delivery department capable of providing services to the respective countries and a list of prerequisites to be considered when services are provided.

Changing this attribute information is far easier than building a comprehensive classification system, and so it is possible to add delivery departments capable of providing services based on the existing knowledge.

2.2 Clustered service components

Service components may depend on other services according to infrastructure preparation and the method of offering information and interfaces. In the Project, consistency and soundness of the global service configurator are checked by a dependency matrix that clarifies the relationships between service components. Even if there is dependency between service components, Fujitsu does not necessarily need to provide all of the service components as part of one customer proposal.

The service configurator stores related data collectively in a repository (data storage). This repository can be used to cluster service components, which makes it easy to select them. Service components can be clustered as required, and the usage conditions are currently monitored with the aim of making future improvements.

2.3 Cost calculation

A standard cost calculation at the component level must be made to provide any solution at an appropriate cost. Cost-determining factors include cost models registered and provided by grasping the costs for the respective delivery departments, calculation methods, and templates. There is no need for each component to have a one to one relationship with a cost model. The same person, platform, and facility can be applied to different components. Establishing a cost model requires two things to be determined:

1) Which dependency, assumption, and default value are used for the cost model
2) Which cost is to be assigned to which component

For the first item, a knowledge database called "business logic" is used to enable the service configurator to offer AI. Based on the experience of various groups involved in the Project, the service configurator calculates typical values for many parameters. For example, for a company of a scale of about 10,000 end-users, business logic can estimate from customer data the ICT assets to be managed based on statistical analysis as 8,000 desktop PCs, 5 Exchange servers and 2,000 printers. The data saved in business logic is protected information of Fujitsu.

For the second, a cost model is broken down into the degrees of contribution from the individual components. This makes it possible to identify the major factors that determine the cost and influencing elements on the cost. Typical factors that determine the cost are the number of users and the volume of data. Typical influencing elements include the levels of service and complexity. The group of cost structures based on the cost registered from a certain delivery department provides a cost matrix valid only for that delivery department. Cost management and updating required strict change management, a governance model, and development of a quality assurance process.

2.4 Other outputs from service configurator

Many departments expanding globally contribute to input and improvement of various pieces of data. The roles and responsibilities of the members involved in services are clearly specified so that certain duties can be taken over. The processes and interfaces for communicating information between different roles are managed by a dedicated governance team. Many

of the summaries, data exports, and reports automatically output have been implemented based on a data warehouse containing all data and project information. As with project-specific statements of work (SoWs), project outlines can be displayed or output. Reports can also be output on use of service components, clustered components, and service offerings. In the same way, reports can be output on changes made to components. One excellent example of data analysis is cost comparison. Numerical formulas are used to compare between delivery departments (internal and external) so as to create cost benchmark information for delivery departments. Furthermore, the legitimacy of cost changes is reasoned, with economic information and industrial trends used as comparing elements.

3. Service configurator platform and tool suite

3.1 Content management

Data and their structures require advanced content management. For data created at some point and subsequently changed at the time of release, it must be possible to use and audit all previous versions at any time. At the start of this Project, 80 service components were offered as documents and they came to be operated with a database over time. In addition, not only an application to support content management but also an end-to-end tool suite for sharing all information obtained were necessary. Market research revealed that there was no content management system capable of handling service components in the market life cycle and managing them based on the overall release process. As a result, we decided to use the two different processes described below for that purpose. The first is intended to collect and manage data, and in the second process, these pieces of data are shared using an efficient application.

The application that covers the governance layer for all data is called SCALA (Service Configurator Lifecycle Applications). SCALA applications themselves run on a relational database management system (RDBMS) or will run on newer databases in the future. Use of an RDMBS has made it easier to connect with other applications. With SCALA applications available, about 24 GB of data have been generated, saved, and released by implementing a workflow of development and improvement of service components. The data model is now over 1,500 tables including over 20,000 attributes.

3.2 Overall structure of service configurator

From the service configurator, it is easy to connect to the Microsoft SharePoint set up internally that is equipped with a search function (**Figure 1**). The SharePoint content is created in response to requests from database content. In order to meet the needs of the bid manager who supervises projects in general together with solution architects, a service configurator front end called SORT (Service Opportunity Response Tool) has been developed. Based on the data drawn from the governance layer, the service configurator can execute an automatic validation check in addition to making components selectable. As a result, deliverables and interfaces that are not supported are identified.

The service configurator is capable of clarifying the risks, assumptions, issues, and dependencies (RAID) in the project negotiation phase. This is key to rapidly spread all knowledge obtained up for all global customers. To further associate solution designs with customer requests, the service configurator has been enhanced with a feature of fetching information from requests for information / requests for proposals (RFIs/PFPs). Fujitsu not only changes existing components and creates new components according to customer requests but also realizes high transparency against deviations from standard levels and improvements to service components.

This free design can help to solve issues that arise between Fujitsu's customer-oriented DNA and standardization. The standardization completed in this way can be used to quickly and efficiently carry out design and customization whenever required. Subsequently, the service configurator saves these new service components and shares them with all designers within Fujitsu.

4. Service configurator

4.1 Service configurator requirements

The service configurator can now be linked via an interface with Fujitsu's processes, customer relationship management (CRM), cost-to-price application, or

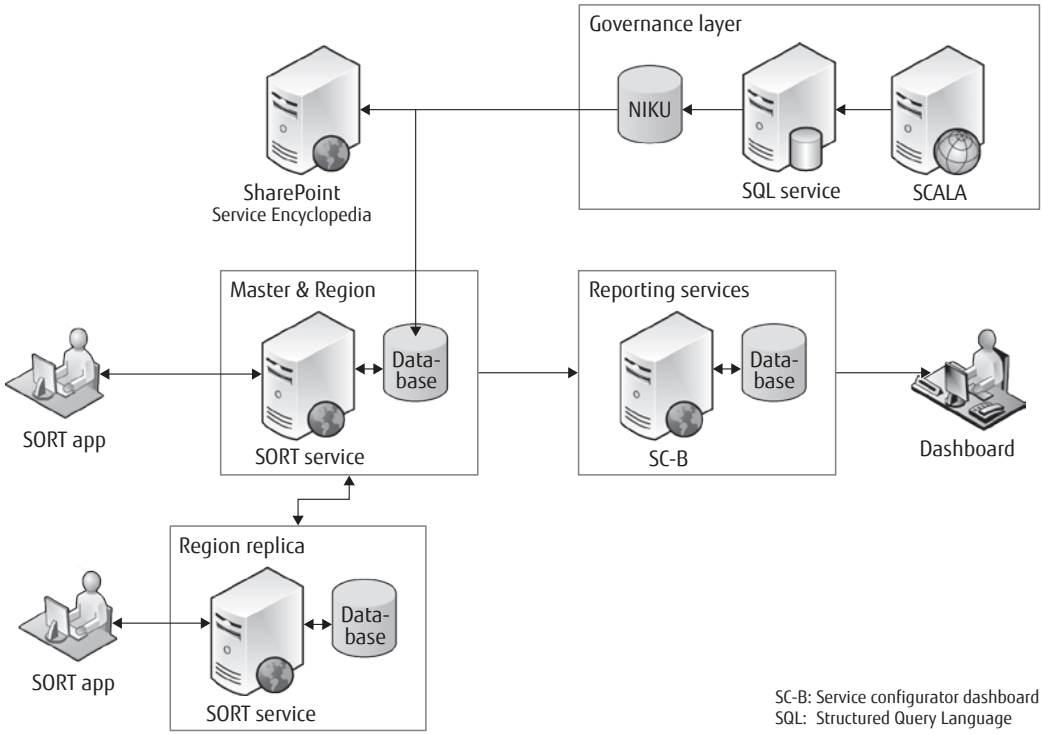

Figure 1
Overall structure of service configurator.

Service Landscape Methodology used for ICT service consultation. The next focus was to allow data mining from all global project data intended for corporate management and continuous strengthening. In a set of reports, business conditions at the global, regional, and national levels are reflected based on a highly secure access concept. Tool data improvements are managed by using learning, where existing data obtained in the official operation phase are compared with those in the design phase. This continues to ensure that design data are adjusted based on the data from productive operations.

One main requirement for the service configurator was the ability to allow cooperation regardless of whether it was online or offline. The service configurator is a high-performance Windows presentation foundation (WPF) desktop client and built on the .NET Platform as a multilayer, multi-component system. The data access layer is implemented by the Entity Framework Code First[1)] approach, which directly generates a database structure from business logic objects and easily changes the structure of a database schema.

Two types of databases, namely Microsoft SQL Server and Microsoft SQL Server Compact (SQL CE), have been used for implementing online and offline scenarios. In **Figure 2**, SQL CE databases are indicated by the vertically striped columns and placed in local application boxes.[2)] SQL CE can be easily deployed on end-user machines. These local databases are synchronized with the master databases for the respective regions shown by the diagonally striped columns and the region databases store static data valid for the respective regions (Label 01). Data shared globally are saved in SCALA databases indicated by the dotted columns.

Communication between a client and server has been implemented in Windows Communication Foundation (WCF) custom security and binding (Labels 03).

4.2 User interface

To increase the transparency of business and allow users to work on their own projects without being affected by the network environment wherever on a business trip, region databases must be synchronized (Label 02).[2)] In this way, global linking between team members across all regions has been made possible

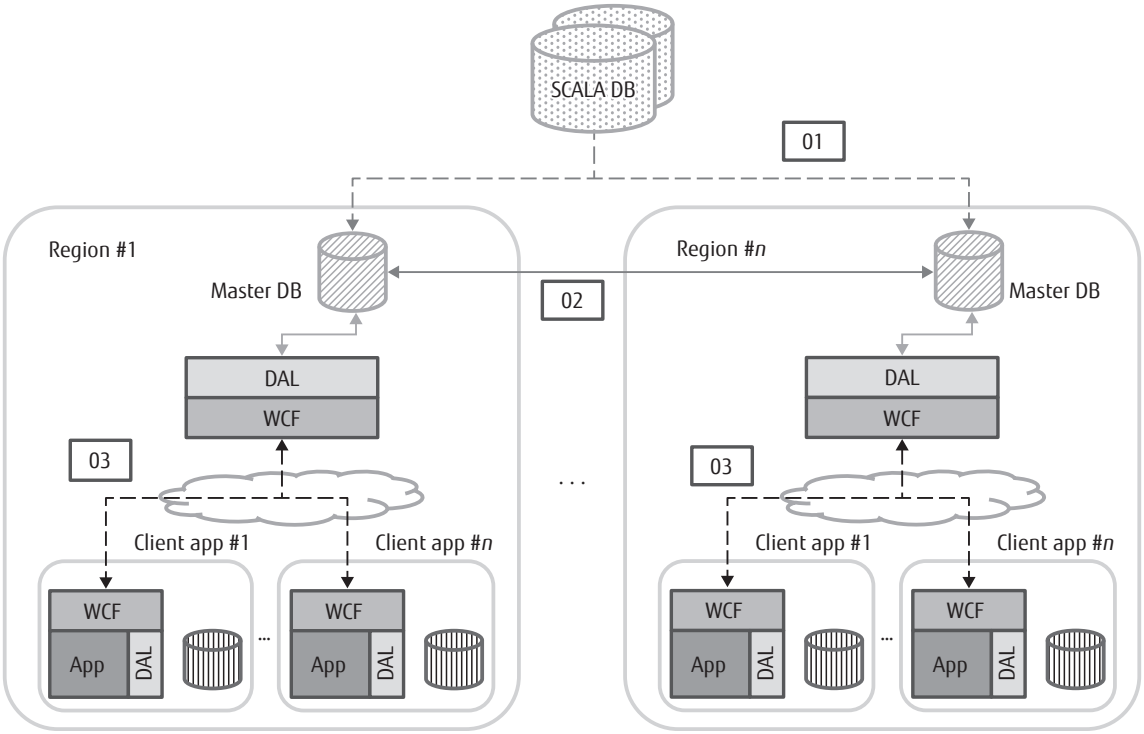

Figure 2
Architecture of service configurator's application environment.

based on strict authentication and approval. By standardizing data in this way, business intelligence tools can be created that are equipped with a sophisticated reporting function and, as the next step, an AI-based self-learning function can be produced. After a feasibility study (investigation and assessment of the practicality a project in advance), the UI of the client application is designed from scratch. The new UI design is a hybrid of ModernUI guidelines[3] and a conventional Windows desktop application. The new UI design allows the user to quickly focus on the task being performed so that he/she can avoid displaying a large amount of data.

As part of the change management process, the Change Advisory Board (CAB) decides on changes to new business cases. As use of the service configurator expands, the number of requirements also increases. However, if they were added to the development plan, the roadmap would be filled to a few more years into the future. The change requests approved are implemented via an agile method. Currently, SORT is released twice a month with the latest functions, cost models, and interfaces of other Fujitsu corporate standards.

5. Conclusion

This paper described the Service Configurator Project, one of the many initiatives to realize Fujitsu's Human Centric Innovation: Digital Co-creation. Introducing the service configurator has shown that it has realized the concepts of "global awareness" and "focusing on communication." Specialists around the world employed by Fujitsu are working jointly to create the service configurator content and knowledge. In this way, communication with global awareness is being introduced simply and efficiently.

The pieces of data in the service configurator are all available within the global Fujitsu Group and new business trends can be introduced and shared at an unprecedented speed. Utilizing them with the service configurator has saved time and trouble in operations, resulting in a reduction in the time required to deal

with Solution Design tasks of up to 80%. Furthermore, the experience gained by one delivery department can be immediately used by other organizations, so that an advantage of scale can be achieved for the service delivery as a whole.

Fujitsu intends to move ahead with the sharing of best practices based on the co-creation that has been developed up to now and on the many services and systems that proved successful. In this way, we will continue to provide customers with standardized services based on global knowledge.

References

1) Microsoft: Entity Framework Code First to a New Database.
https://msdn.microsoft.com/en-us/data/jj193542.aspx
2) Microsoft: Microsoft Sync Framework.
https://msdn.microsoft.com/en-us/sync/bb736753.aspx
3) Microsoft: Design applications for the Windows desktop.
https://developer.microsoft.com/en-us/windows/desktop/design

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