

NEC's Advanced Methodologies for SAP Projects

MORITA Kouji, KOIZUMI Masaki, ODAGUCHI Takeshi, NAKANISHI Eisuke, MURAI Yuuji, MAEKAWA You

Abstract

As many large and medium sized enterprises adapt ERP in their core systems, demand for Real-time and global requirement is increasing. Due to this trend, SAP SE, which is the biggest supplier of ERP portfolio, is positively promoting the following: SAP HANA Architecture featuring in-memory DB, Business By Design featuring cloud-based ERP and Best Practice featuring templates for various business types and industries. NEC's SAP business also employs these solutions to support our customers. This paper introduces our advanced approach to using these solutions in our SAP business together with a discussion of case studies of selected customers.

Keywords



SAP, ERP (Enterprise Resource Planning), SAP HANA, cloud, global deployment, Business By Design, templates

1. Introduction

Subsequent to the Japanese major enterprises completing the introduction of SAP ERP by 2010, SAP SE began to give details of the following three aspects of their new market development strategy;

- Implementation of real-time data management using the SAP HANA;
- Enhancement of service menus by using cloud systems;
- Improvement of ERP user experience (UI enhancement).

Under this market environment, NEC started challenging SAP HANA businesses by leading other Japanese major vendors and achieved some significant results, such as business reform through renovation of system infrastructure at Trusco Nakayama Corporation.

With regard to our efforts in promoting cloud-based systems, NEC provides the “NEC Global Localization Package for SAP Business By Design” that is currently boosting business in six Asian countries via prioritized collaboration with SAP SE.

In our efforts in promoting ERP, we have developed a template based on the Best Practice templates of SAP SE and pro-

vide it to the automotive industry. We have then deployed this template to our customers' global subsidiaries. This template consists of standard functions including the kanban (Just-in-time) system in order to provide speedy and secure support to our customers.

In the following sections, we describe the advantages of these solutions based on case studies reports of implementations by our customers.

2. Real-time Management Using SAP HANA - Case of Trusco Nakayama Corporation -

2.1 Customer Issues

Trusco Nakayama Corporation is a wholesale company that supports fabrication sites by selling maintenance, repair, and operations merchandise (Pro Tools). It has a product line of more than 1.2 million items and supplies approximately 5,400 customers.

In the year 2000, the original catalogue “Nakayama Commercial Report” was renamed “Orange Book,” which has been republished every year since then. In those days, the corporation received orders via telephone and facsimile at sales offices

all over Japan and persons receiving the orders registered them manually in their corporate core systems. The auto fax order receiving system "DOTKUL" was also introduced in the same year.

In 2002, Trusco Nakayama automated its order receiving procedures by starting to run the WEB TRUSCO web order receiving system, thereby aiming at improved business efficiency and customer convenience. The corporation increased the ratio of auto order receptions gradually by linking the system to special measures such as exclusive price reductions for auto order receptions.

In addition, the corporation introduced SAP ERP as its new core system in 2006. Since then, it has been operating the web order receiving system by linking it to the inventory management system and data analysis systems. At the same time it has enhanced web order receipt via the general Pro Tool site called the "Orange Book.Com, a search/order system," which is regarded as the web version of its Orange Book catalogue.

Nevertheless, as transactions have grown due to the expansion of inventories and business achievements and the ratio of web order receipt have increased, issues related to the processing performance of the system have emerged. These include a deterioration in the response to inventory displays and a reduction in the calculation speed of the inventory optimization system.

In order to resolve these issues and to enhance sales force quality and optimize the inventory management, Trusco Nakayama has proceeded to innovate their data utilization infrastructures. This was done by adopting the SAP HANA in-memory computing platform of SAP SE, because of its ultra-high speed performance in processing large amounts of data.

2.2 NEC's SAP HANA Solution Supports Real-time Infrastructures

SAP HANA is an in-memory database of SAP SE that is also the provider of the ERP. It has been developed in order to increase speed and to enable real-time application processing.

Its features include "independences of the front screen/data sources from SAP products," "incorporation of a data analysis engine as a library" and "support of both lines and columns for real-time linkage of differential data."

NEC has established a global competence center at the SAP head office in Germany in order to verify the functions of SAP HANA in leading its competitors.

Trusco Nakayama has adopted our Express5800/ft Server that was the only uninterrupted operation server with completely redundant hardware in order to enable; 1) a web order receiving system with uninterrupted operations, even in the event of an equipment failure; 2) real-time, direct referencing of inventory information in a core system (SAP ERP); 3) scalability to meet future transaction increases (Fig. 1).

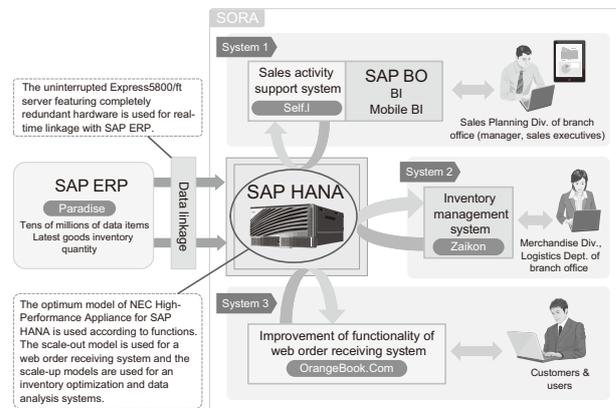


Fig. 1 System configuration at Trusco Nakayama Corporation.

(1) Web order receiving system with uninterrupted operations in the event of equipment failure

SAP HANA that supports the web order receiving system is a scale-out model featuring high performance and high availability. In addition, the uninterrupted Express5800/ft server featuring completely redundant hardware is adopted as the server to support the real-time linkage of inventory information via SAP ERP. This is so that the web order receiving system will not interrupt operations even in the event of an equipment failure in the hardware.

(2) Real-time, direct referencing of inventory information in core systems (SAP ERP)

The inventory information of core systems is linked in real time to the SAP HANA database by using SAP Landscape Transformation (SLT) architecture.

(3) Scalability to meet a future transaction increase

In order to prepare for the increased business volume expected in the future, the inventory optimization and data analysis systems employ the SAP HANA scale-up models that feature high performance and high scalability.

2.3 Benefits

For the web order receiving system, the real-time data linkage with the ERP has further improved the convenience of customers using the OrangeBook.Com. The ratio of order reception via the Internet is now as high as almost 80%.

With regard to the inventory optimization, the capability of instantaneous processing and analysis of huge amounts of data has improved. These resulted in the accuracy of inventory management per distribution center and area, and also a high stock hit rate of 88.1%.

As for new values to support sales activities, information such as associated sales proposals and forecasting of order reception timings of repeated products are now available. Such information makes it possible for sales engineers to access

required information in a timely manner. Furthermore, a quick response is provided to customer inquiries regarding the delivery terms and prices and the sales engineers can check the inventory situation instantaneously on their tablet terminals.

2.4 Future Perspectives

At present, Trusco Nakayama is planning to improve demand forecasting accuracy using the high-speed processing performance of SAP HANA as well as challenging the real-time processing of ERP. This strategy is applied to the core system, by using SAP HANA to create a solution that enables stock ordering at the most optimum timing.

3. Cloud-based ERP Solution – Case of Food Company A –

3.1 Customer Issues

As a result of the maturing of the domestic market, food company A has adopted a growth strategy of pioneering overseas sales channels, and has performed large-scale M&A (Merger and Acquisition) operations of global brands.

In parallel with the merger procedures, the company proceeded to prepare for the sales activities of the merged subsidiaries. Six months before the scheduled establishment and start of sales activities by overseas subsidiaries, the company was challenged with the need to develop a core system enabling the simultaneous startup of three subsidiaries in the Asian area. In addition, the company was required to consider a small start in the beginning, however, it was also expected to cope with the rapid business expansion in the future and to ensure effective governance from the head office in Japan.

3.2 NEC's Unique Approach to Global Cloud Type ERP Services – SAP Business By Design –

In 2013, NEC concluded a global collaboration agreement on SAP Business By Design business with SAP SE. Based on this agreement, we have developed additional localization functions to meet the statutory requirement and commercial customs of six Southeast Asian countries, including Singapore and Malaysia and others. The product reflects measures designed to respond to local commercial customs and legal systems based on NEC's experiences in business deployment in Southeast Asian countries. It is named "NEC Global Localization Package for SAP Business By Design".

Food company A examined three proposals; 1) roll-out of a domestic core system; 2) development of local systems and; 3) introduction of a cloud-based ERP solution. As a result, it decided to introduce SAP Business By Design that allows a user to advance the project based on a business scenario using

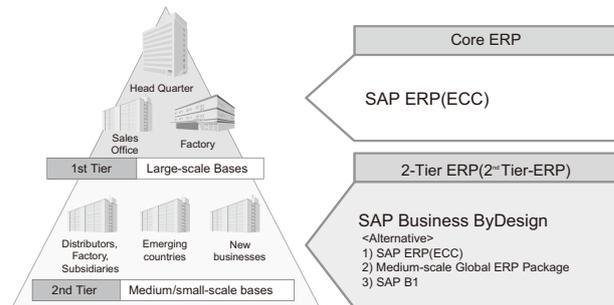


Fig. 2 "Two-tier ERP approach" for global standardization.

the cloud system. This strategy enabled the reliable short term startup of a core system.

SAP Business By Design is provided with a rapid implementation methodology. With the previous ERP implementation methodology, the fit & gap analysis was conducted for each business process to be implemented in the future. SAP Business By Design, however, incorporates the standard scenarios for a wide range of functions. These include: accounting, sales, marketing, inventory, purchases and supply chain management and more. As for other business functions not contained in the standard scenarios, the customers are allowed to decide whether they conduct the BPR (Business Process Re-engineering) by themselves or develop additional functions (Fig. 2).

In the case of company A, the standard scenarios were maximally applied for new business functions and the project staff of the company put great efforts into the project so that the quick start-up of the project was achieved.

3.3 Benefits

With the company A project, we were not only able to start up the three subsidiaries simultaneously within six months but also realized stable operations from the beginning. Since SAP Business By Design is an SAP HANA-based solution, it was also capable of acquiring and analyzing the latest management information of all countries in real time so that the effective governance of the Japanese head office was guaranteed.

In addition, as company A decided not to dispatch system staff to the local subsidiaries, NEC's Singapore Support Center receives inquiries from them in the English language, thereby succeeding in performing operations satisfactorily with a limited number of staffers.

3.4 Two-tier ERP Approach

Company A is planning to expand sales channels in the Asian region by using the introduced systems as footholds, and NEC will continue to support this plan.

NEC does not consider the SAP Business By Design as being just for the use of those customers needing speedy deployment to overseas subsidiaries like Company A. Instead, we also propose its use, in the form of “a Two-tier ERP approach,” for the customers that have already introduced the SAP ERP systems in their Japanese head offices and need to standardize small-scale overseas bases. This approach will allow such customers to advance global business standardization according to the growth of each sales base.

4. NEC's ERP Implementation Methodology without “add-on” - “SI without add-on” method -

4.1 “SI without add-on” method

In general, the traditional ERP implementation methodology the system functions required for the future businesses of customers via inquiries of the management and field staff and by checking their applicability (fit & gap) to the ERP standard functionalities.

Nevertheless, the traditional process often led to replacement of the current system or of budget overruns due to additionally developed functions, in spite of the ERP being adopted with the aim of reforming the business process.

It is known that project failures as mentioned above are mainly caused for the following two reasons.

- (1) Cases in which the studies were conducted based on current functions, without sufficient regard for new business processes.
- (2) Cases in which developments were advanced without sufficient evaluation of the ROI (Return On Investment) system requirement.

The NEC's “SI without add-on” method” employs the 105 operation scenarios provided in the SAP Best Practice Template as standard functions. Our “SI without add-on” method prepares the standard operation flow to meet the needs of the customer's industry such as the automotive industry. The standard operation flow allows the customer to select not only the purposes of future functions but also the needs of current functions. This process helps reducing the opportunities of add-on developments.

Introduction using the “SI without add-on” method” adopts the following three steps (Fig. 3).

- Step 1: Selects required operations among the operations scenario menu
- Step 2: Standardizes & groups of required operations
- Step 3: Compiles of operation processes by combining required operations to map SAP functions on them

These steps are taken as described in the following example, which is based on the case of application to an automotive part manufacturer B.

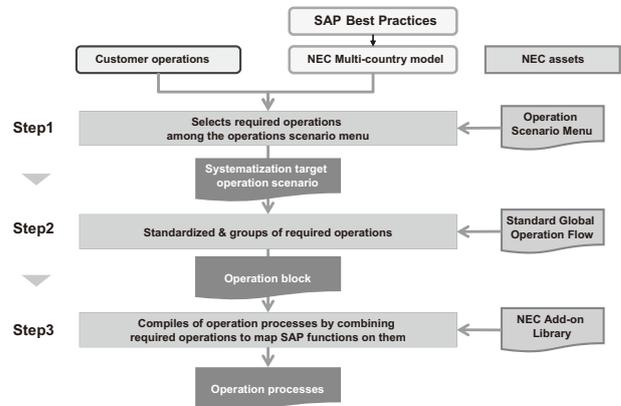


Fig. 3 “SI without add-on” method.

Step 1: Selects required operations among the operations scenario menu

All of the scenarios to be used by customers are selected from the 105-item operation scenario menu to determine the systematization target range.

The reason for this step is that NEC's SAP consultants can explain details of the 105 operational scenarios to customers in advance. This procedure simplifies the range of functions that can be implemented via the SAP standard functions and allows customers to identify by themselves whether additional development is necessary.

Step 2: Standardized & groups of required operations

The processes and patterns of several operations are standardized and grouped.

In the case of manufacturer B, businesses X (make to order) and Y (make to stock) were in charge of different divisions and the operation/utilization systems were also different. We attempted to prevent an increase in the systematization target operations by organizing the business processes and patterns so that the different operations are combined and the common operations are grouped.

Step 3: Compiles of operation processes by combining required operations to map SAP functions on them.

The operational process matching the kanban system is developed and the SAP standard functions are mapped (Fig. 4).

Manufacturer B adopts the kanban system (also called Pull manufacturing, by which articles pulled by the downstream process are produced), but the SAP standard operation processes are based on the idea of push manufacturing based on a production plan.

If this situation is left unchanged, the production planning module would be difficult to apply and add-on developments would become necessary. To deal with this

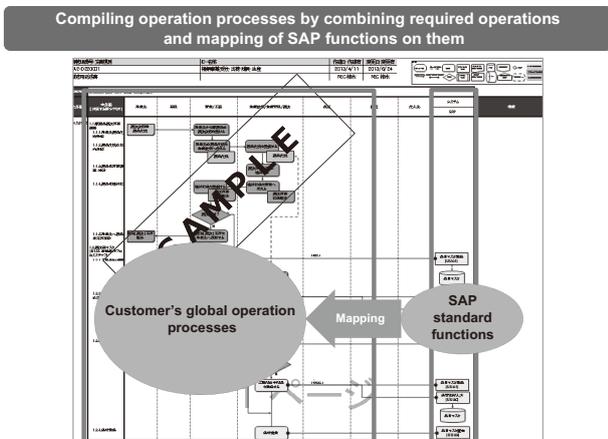


Fig. 4 Image of Step 3.

issue, we redefined the SAP system functions according to the operational processes of the kanban system and decided that operations that cannot be processed with the SAP would be dealt with by manual processing instead of by developing new systems for them.

By executing the three steps of the “SI without add-on” method, manufacturer B has succeeded in fully utilizing the SAP processing and achieving the kanban system using the SAP standard functions with “0” add-on development.

5. Conclusion

In the above, we described SAP HANA, the “NEC Global Localization Package for SAP Business By Design” global cloud product and the “SI without add-on” method” ERP introduction method by referring to cases in which NEC’s advanced approach was applied.

The HANA introduction at Trusco Nakayama Corporation using NEC’s uninterrupted infrastructure technology has contributed to improving the company’s web order receiving ratio. This case study was highly evaluated by SAP SE as an advanced approach and won the Best Project Award (MVP) of SAP AWARD of EXCELLENCE 2015.

The case of the introduction of the global cloud system “NEC Global Localization Package for SAP Businesses By Design” was also evaluated for the simultaneous startup of multiple countries won the Project Award of SAP AWARD of EXCELLENCE 2015.

With the “SI without add-on” method, we described the specific method and flow that could build the core system of an automotive manufacturer with “0” add-on development. The NEC Group, including ABeam Consulting Ltd., has the largest number of SAP consultants in Japan that are capable of providing consistent support systems, including those for customer business reform, SAP implementation & maintenance,

and overseas deployment.

As the use of ERP is expected to accelerate the fusion of IT and OT (Operations Technology), NEC will continue to challenge even more advanced fields.

* Business ByDesign and SAP HANA are registered trademarks or trademarks of SAP SE in Germany and other countries.

Authors' Profiles

MORITA Kouji

Senior Manager
Global Products and Services Development Division

KOIZUMI Masaki

Senior Manager
Global Products and Services Development Division

ODAGUCHI Takeshi

Manager
Global Products and Services Development Division

NAKANISHI Eisuke

Manager
Global Products and Services Development Division

MURAI Yuuji

Assistant Manager
Global Products and Services Development Division

MAEKAWA You

Assistant Manager
Global Products and Services Development Division

Information about the NEC Technical Journal

Thank you for reading the paper.

If you are interested in the NEC Technical Journal, you can also read other papers on our website.

Link to NEC Technical Journal website

Japanese

English

Vol.10 No.1 Special Issue on Enterprise Solutions to Support a Safe, Secure and Comfortable Life — - Value Chain Innovation Linking “MAKE,” “CARRY” and “SELL” -

Remarks for Special Issue on Enterprise Solutions to Support a Safe, Secure and Comfortable Life
NEC's Approach to Value Chain Innovation
- Safer, More Secure and More Comfortable Living Through Value Chain Innovation -

Value chain innovation: “MAKE”

Making the Manufacturing Industry More Responsive – NEC Manufacturing Co-creation Program
NEC Industrial IoT - Building the Foundation for Next-Generation Monozukuri
Industrie 4.0 and the Latest Trends in Monozukuri Innovation in the Auto Industry

Value chain innovation: “CARRY”

Logistics Visualization Cloud Services in Asian Developing Countries

Value chain innovation: “SELL”

ICT and the Future of the Retail Industry - Consumer-Centric Retailing
An Advanced Electronic Payment System to Support Enhanced Service Provision
NEC's “NeoSarf/DM” E-Commerce Solution and the Omni-Channel Era
NEC Smart Hospitality Solutions - Deploying OMOTENASHI or the Unique Japanese Way of Entertaining Guests

Sustainable living/Sustainable lifestyles

Transit System Smart Card Solutions and Future Prospects
NEC's Commitment to Smart Mobility
EV Charging Infrastructure System That Facilitates Commercialization of EV Charging
IoT Device and Service Platforms Development and Realizing IoT Business

NEC's advanced ICT/SI for the enterprise domain

NEC's Approach to Big Data
Demand Forecasting Solution Contributing to Components Inventory Repair Optimization
Predictive Analytics Solution for Fresh Food Demand Using Heterogeneous Mixture Learning Technology
Global Deployment of a Plant Failure Sign Detection Service
Application of Big Data Technology in Support of Food Manufacturers' Commodity Demand Forecasting
Contributing to Business Efficiency with Multi-cloud Utilization and Migration Technology
Integrated Group Network Using SDN Case Study: Toyo Seikan Group Holdings
Meeting the Challenge of Targeted Threats
Security Assessment Ensuring “Secure Practice” Against Escalating Cyberattacks
Control System Security Anticipating the Coming Age of IoT
NEC's Approach to VCA Solutions Using Image Identification/Recognition Technology
Quick-Delivery, Low-Cost Web Development Architecture born from Field SE
Embedded System Solutions for Creating New Social Values in the Age of IoT
NEC's Advanced Methodologies for SAP Projects



Vol.10 No.1

December, 2015

Special Issue TOP