

Global PLM Obligato

# Sanden Holdings Corporation



## Challenges

- Due to the acceleration of globalization in the automobile parts industry, establishment of consistent global manufacturing process and uniform global quality has become important.
- The existing process was optimized individually. Hence, there were problems such as price difference in purchase unit price depending on the manufacturing site even though the same part is used. And it was inefficient reuse of similar parts between manufacturing sites.
- Sanden holdings (hereinafter to be referred as "Sanden") wants to concentrate on the development of the new technologies by eliminating the waste in the current MONOZUKURI process

## Results

### Streamlining the linkage between engineering and manufacturing with integrated BOM

Smooth Linkage between engineering and manufacturing process with the approach of integrating BOM for each purpose which are provided by Obligato such as engineering BOM, manufacturing BOM. Establishment of consistent MONOZUKURI process globally by managing manufacturing BOM for each manufacturing site and by linking with ERP system in each site.

### Standardizes part number rules and process, and consolidate information in PLM

It consolidates the information related to engineering and manufacturing in global PLM, which was managed individually at each site. By visualizing the information, Sanden has created a new environment where problems such as waste of purchasing costs can be detected quickly and accurately, which would be useful for appropriate decision-making.

### Accelerating operational efficiency and focusing on resources for the development of new technology

It implements the digitalization of operation and standardization of process. Sanden will work positively on new technology development by reducing large number of man-hours for engineering related work and by allocating appropriate human resource.

## Customer

Sanden Holdings Corporation

Address: 20 Kotobuki-cho Isesaki City Gunma Prefecture, Japan

Established: July 30th, 1943

Number of employees : 6,509 (Consolidated Global Offices)

**Overview:** An independent automobile parts manufacturer that consistently develops, manufactures and sells compressors and system for car air conditioner with leading global market shares. It has developed its business at 49 locations in 23 countries around the world

Sanden is developing initiatives that work together as a whole under the vision of "Open up a new era and become a company that is trusted by all the people so that we will be able to create an enriched society in which environment and comfort are harmonized".

URL: <https://www.sanden.co.jp/english/index.html>



Sanden Global Center (Isesaki City)



Sanden Yattajima Plant (Isesaki City)

## Building a platform that links engineering and manufacturing digitally with BOM as core Further progress through global MONOZUKURI process innovation

## Challenges

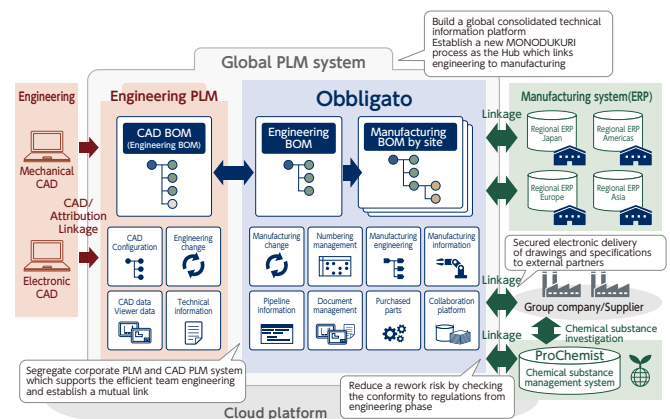
Aiming for overall optimization of individually optimized engineering and manufacturing process

Sanden develops, manufactures and sells automotive equipment systems based on "Cooling and Warming" technology. Sanden has attained a leading share globally, especially in the field of car air conditioning compressors. Recently Sanden has been also focusing on the development of product for electric vehicles.

Sanden is trying to contribute to the further development in the automobile industry through development of a system that improves "electricity cost" by integrated heat management.

The company is also known for its early entry into the global market since the beginning of 1970, when global expansion was still rare. Since then, it has steadily improved its global presence while expanding manufacturing sites in Europe (Germany, France), Asian countries, and China starting with the United States.

- Global PLM system that links engineering and manufacturing digitally by Obligato



It implements the smooth information and process linkage between engineering and manufacturing by linking digitally from CAD to engineering BOM, manufacturing BOM for each site, and manufacturing system at each site. Information related to MONOZUKURI is consolidated and visualized on PLM system and it is possible to practice standardized manufacturing process on a global scale.

During this period, the company has implemented engineering and manufacturing respectively at each site to strengthen its competitiveness by responding to local needs. However, now it has become difficult to respond to the current environment with old system.

Hirofumi Takahashi of Sanden reveals that "Approach for individual optimization to manage the engineering drawings, unit price, inventory amount, etc. for each site have caused various problems such as inefficiency". For example, a lot of time was consumed to obtain the information since the part number system was not standardized. There were problems such as price difference in purchase unit price depending on manufacturing site even though the same parts is used, inability to optimize inventory and inefficient use of similar parts between manufacturing sites.

## Solution

PLM system that does not only support the engineering work but also supports optimization of the entire manufacturing process.

Therefore, Sanden started to optimize the entire process from engineering to manufacturing.

Mr. Takahashi says that "We have decided to promote the innovation aimed at improving QCD across the company by standardizing the manufacturing process on a global scale, improving efficiency and eliminating the waste thoroughly".

They nominated the members from each department and launched the "Production Process Standardization Project", and furthermore requested NEC consultants to participate at the same time. Furthermore, Sanden decided to obtain various support such as, extraction of issues, formulation of process improvement plans, establishment of new business requirements, planning of PLM system etc.

Mr. Takahashi explains that "I have read several documents on BOM, which are the key of global manufacturing, however the articles that were especially helpful were written by NEC's consultants. Therefore, that was the reason why we requested NEC to participate".

Thereafter, Sanden conducted interviews with all related staffs in their group companies for one year, and after thorough internal discussion, they established five global standardization policies; "Global standardization of the technical information management methods", "Utilize BOM for each purpose to streamline collaboration between engineering, manufacturing and purchasing departments", "Implementation of global drawing and part number rules", "Standardization of drawing and BOM management process", and "Standardization of technical information management in upstream phase of development". Furthermore, we decided to adopt NEC's PLM system "Obligato" as a global PLM system that supports the new MONOZUKURI process.

Mr. Hiroshi Sekiguchi of Sanden says that "We avoided to choose NEC products blindly although NEC was participating in the planning phase of the project. We evaluated and examined PLM products of each company and proposals from vendors with an honest feeling about which system can realize our "new business requirements" that have been built up in the concept phase". Specifically, the evaluation items at the time of selecting company's IT system

as the feasibility of new business requirements are set by rating the product of each company and vendors based on detailed feasibility items such as measures for five global standardization policies, collaboration with existing systems, project promotion procedures and systems etc. As a result, NEC's Obligato was the most highly rated.

Mr. Sekiguchi emphasizes that "Obligato was focused on optimizing the overall MONOZUKURI process, while other products were focused on the work of designers, and furthermore it also had a clear vision for global rollout. We were satisfied with the knowledge and know-how of NEC, which is also a manufacturing company, with respect to the significance of having an engineering BOM and a manufacturing BOM separately, and having the manufacturing BOM for each site, and integration of BOM by the purpose of application, that links with the ERP system by manufacturing site, and the approach of linking engineering and manufacturing with digital technology".

## Results

Early detection of problems and quick resolution by consolidation and visualization of information with BOM as core

Initially, Sanden launched Obligato in Japan. Thereafter, Sanden plans to expand gradually to the Europe, United States, Asia and China. NEC provides collaborative support with Capgemini for global rollout of Sanden's PLM system, which is known as an IT consulting firm that operates in over 40 countries around the world.

Hideyuki Hoshino of the Sanden says that NEC was the only one who provided a concrete roadmap for such global rollout. The collaboration between NEC and Capgemini has a sense of security that provides support with an understanding of the local temperament.

The engineering and manufacturing process are standardized and rectified with BOM as core, and all kind of information such as related technical documents, 3D viewer data, change history information, manufacturing information such as inventory and cost, project information, contained chemical substances information, are consolidated in the form as linked with BOM, when rollout is completed. It centralizes the MONOZUKURI Information on a global scale, while linking with both manufacturing management and ERP system in each manufacturing site.

Mr. Hoshino says that "In the past, engineering BOM and manufacturing BOM were not separated and handling of hard copy of documents and various information were managed individually. However, now operations are digitized globally on the basis of integrated BOM such as standardized drawing and parts number rule, technical document system, process standardization etc. He believes that the efficiency of business gets improved dramatically with the utilization of Obligato such as information that has not been captured until now can be visualized, necessary information can be extracted easily, waste of cost can be detected and concrete improvement measures can be considered.

Mr. Takahashi of Sanden says that "The environment has been set up. From now, how do we utilize it for ourselves? Innovation of MONOZUKURI process by Sanden is going to be the execution phase. With this challenge, Sanden's presence in the global market is likely to increase further.