

accenture

# Nissan Chemical Corporation

Achieving  
Manufacturing  
Excellence  
through a Virtual  
Integrated  
Database



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# Call for change

**The manufacturing industry, particularly the chemical and petroleum sectors, have long faced challenges such as high maintenance costs, lack of coordination among systems, and inefficient data management. Nissan Chemical Corporation, hereinafter Nissan Chemical, a global leader in the chemical industry, recognized the need for digital transformation to enhance value creation and to address manufacturing challenges, embarked on a company-wide digital transformation journey, encompassing factories, business operations, and research and development. Accenture supported the organization-wide digital transformation efforts by providing system construction and data analysis support.**

The company operated disparate systems that used to work in silos, resulting in variations in data quality and accuracy. This inconsistency in data quality made it challenging to derive meaningful insights and hindered the company's ability to make data-driven decisions. As a result, the emphasis was placed on qualitative work that made its people rely on intuition, tips, and experience rather than leveraging quantitative analysis. This approach limited the company's ability to fully optimize operations and achieve cost efficiencies.

The manual processes resulted in lack of accurate records, handover reports, and reliance of equipment documents to be stored on paper, even as information related to product plans and near-miss incidents were required to be saved on Excel spreadsheets. Additionally, important data and equipment documents were not digitized, while data cleansing and collection processes were time-consuming, leaving limited capacity for analysis.

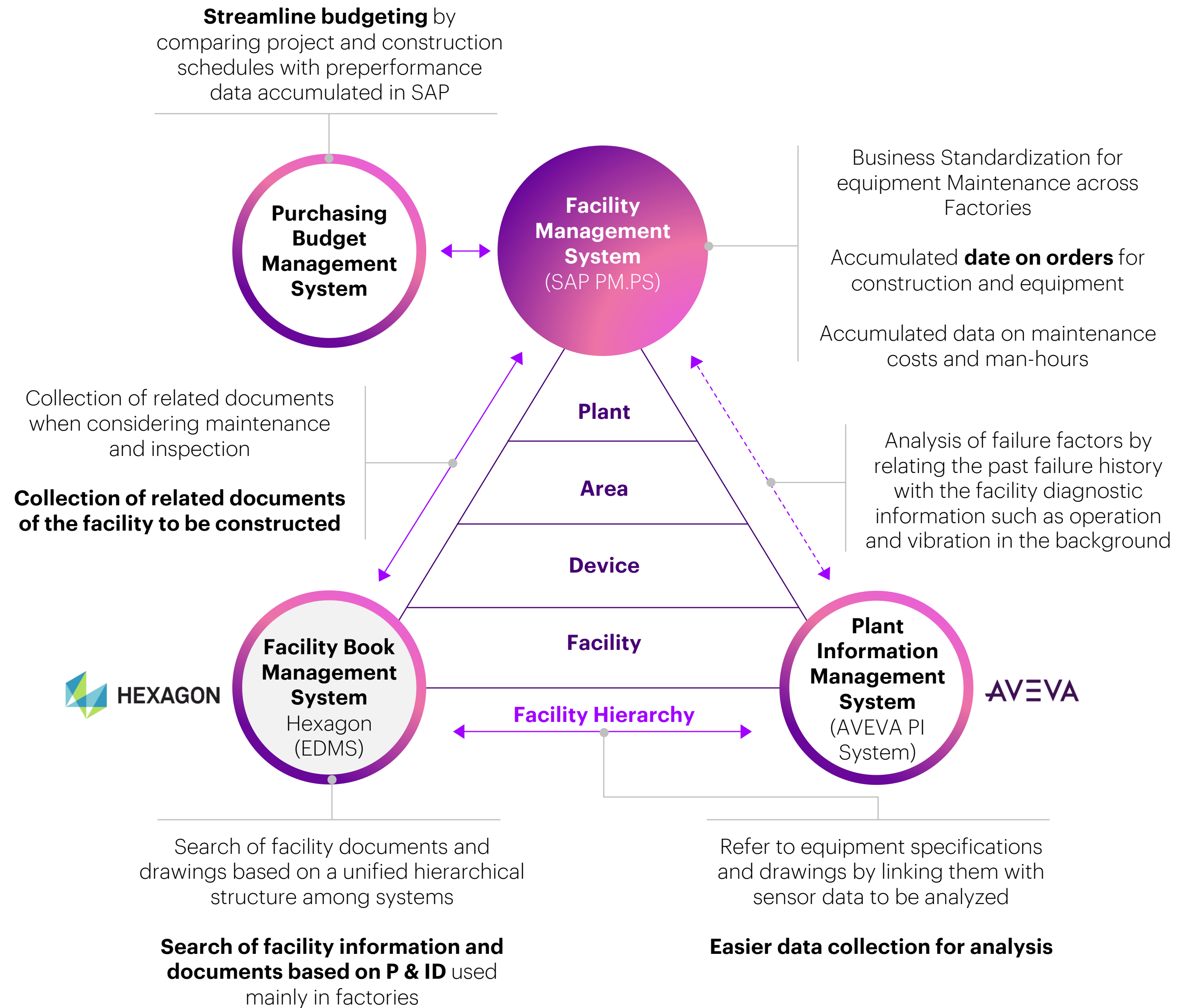


**Recognizing the need for a more integrated and data-driven approach, Nissan Chemical sought the expertise of Accenture to overcome these challenges and establish a standardized and efficient operational framework.**

# When tech meets human ingenuity

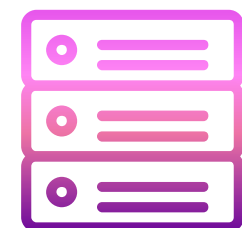
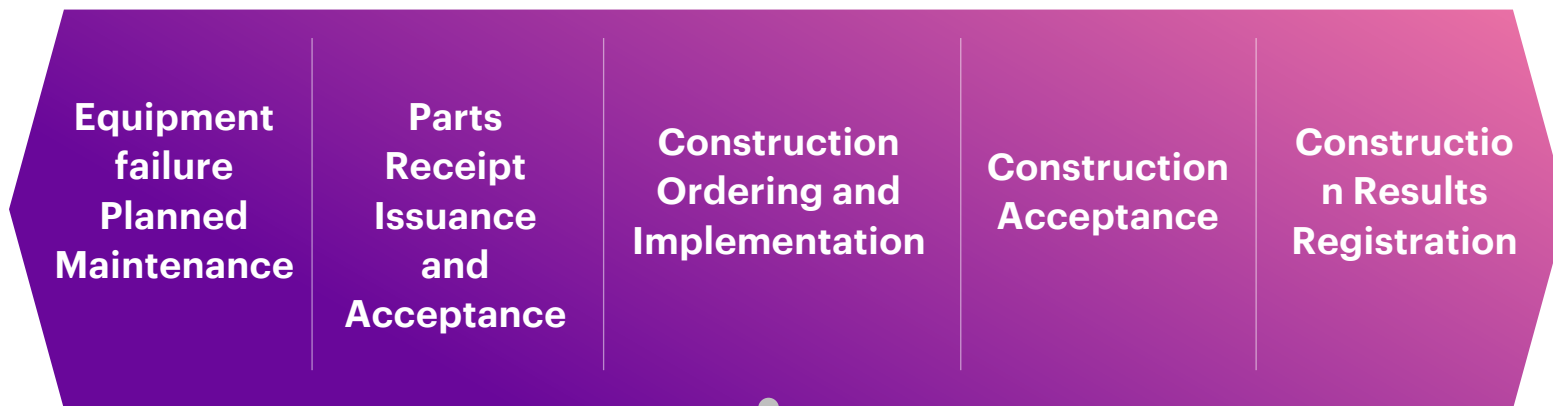
Nissan Chemical became one of the first within the sector to embark on reforms. In 2019, during the initial stages of the digital transformation journey, a roadmap was charted to address issues related to systems and data. Accenture conducted a thorough review of the existing processes and identified the challenges that needed to be resolved.

Accenture, together with Nissan Chemical's Production Engineering, Facilities Management, Manufacturing, and Digital divisions, developed a comprehensive solution to address these challenges in 2023. The key focus was on building a virtual integrated platform that would centralize data management and enable efficient data analysis. This platform would link the Plant Information Management System (AVEVA PI), Facility Maintenance Management System (SAP EAM), and Equipment Document Management System (Hexagon EDMS).





# Overview of facility management systems (SAP PM & PS)

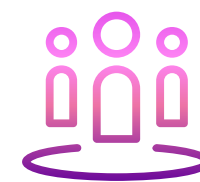


**SAP**  
(Stores data related to maintenance & purchasing)

The following data is stored through the above operations

Storage of data related to maintenance plan, maintenance history and cause of failure

Storage of data to equipment such as purchase order, acceptance record and actual cost



**Staff**

The following report is automatically generated from the data stored in SAP


Object クラス	実際停止	平均修復時-MTTR	平均修理間隔-MTBR
合計	2	40.534 H	97.467 H
TC0102	2	40.534 H	97.467 H

Based on the report described above, it is possible to view the number of failures and device outages for each device (including individual devices), as well as the planned budget and actual results.

One of the initial steps in the process was to integrate the Equipment Document Management System (EDMS), Facility Management System (FMS), and Operational Information Management System (PIMS) to create a common storage platform for important master data such as drawings, equipment documents, maintenance data, and operation data. This integration took three years to build, and Accenture also formulated security policies and cloud utilization policies to ensure data integrity and protection.

Accenture further enhanced the virtual integrated platform by implementing SAP's equipment management system (PM and PS). This integration aimed to standardize maintenance operations, improve resource management, and enhance equipment maintenance and manufacturing operations. One of the biggest advantages of having SAP as the platform was its ability to have real-time reporting and review of maintenance activities and costs, eliminating the need for manual data entry on papers and spreadsheets.





**In addition to the Facilities Management System (PM and PS), the Equipment Document Management System (Hexagon EDMS) improves the retrieval of asset-related information, and by connecting them with Plant Information Management System (AVEVA PI), the data can be used to improve equipment reliability and productivity.**



The reason for choosing Accenture was the wealth of knowledge by the proven track record and their exceptional technical expertise. However, the main reason was we could realize during the initial stage that "they can share our values and will support us in our challenge!"

**Mr. Toshiyuki Hata**

Executive Officer, Nissan Chemical Corporation.



# A valuable difference

The implementation of the virtual integrated platform brought several benefits to Nissan Chemical. With the introduction of the virtual integrated platform, operations related to equipment maintenance at all Nissan Chemical plants have been standardized. This standardization has led to improved efficiency, reduced man-hours, and lower maintenance costs. The virtual integrated database has also facilitated the optimization of capital investment at all plants, allowing Nissan Chemical to allocate resources more effectively. This optimization of operations and data analysis also laid the foundation for more efficient maintenance, reducing the risk of accidents, contributing to safety enhancements and unplanned stoppages, and help create a safer working environment for its employees.

The platform enables the company to proactively identify potential risks and address them before they escalate into critical incidents of missed maintenance. This proactive approach to safety not only ensures the well-being of employees but also the continuity of operations and minimizes financial losses.

The virtual integrated database has empowered Nissan Chemical's shift to making data-driven decisions at both the operational and management levels. The availability of accurate and up-to-date data allows for better resource allocation, improved production planning, and enhanced overall performance. The insights gained

from data analysis enable Nissan Chemical to identify areas for improvement, implement targeted strategies, and stay ahead of the competition.

Nissan Chemical and Accenture continue to collaborate on further enhancing the virtual integrated platform. By leveraging the expertise of Accenture and its ecosystem partners, including SAP, Hexagon, and AVEVA, Nissan Chemical is well-positioned to achieve sustained competitiveness in the dynamic manufacturing landscape.



**Through this initiative, we have learned the mindset, organizational structure, education, and approach required for digital transformation. We could set the foundation for change within our company. It has been inspiring and enjoyable to witness the continuous growth of our engineers. Our digital transformation has now started to progress independently. However, our efforts to strengthen the value creation and co-creation process will continue. We like to ask for your continued support as a valuable partner.**

**Mr. Toshiyuki Hata,**  
Executive Officer, Nissan Chemical Corporation.



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