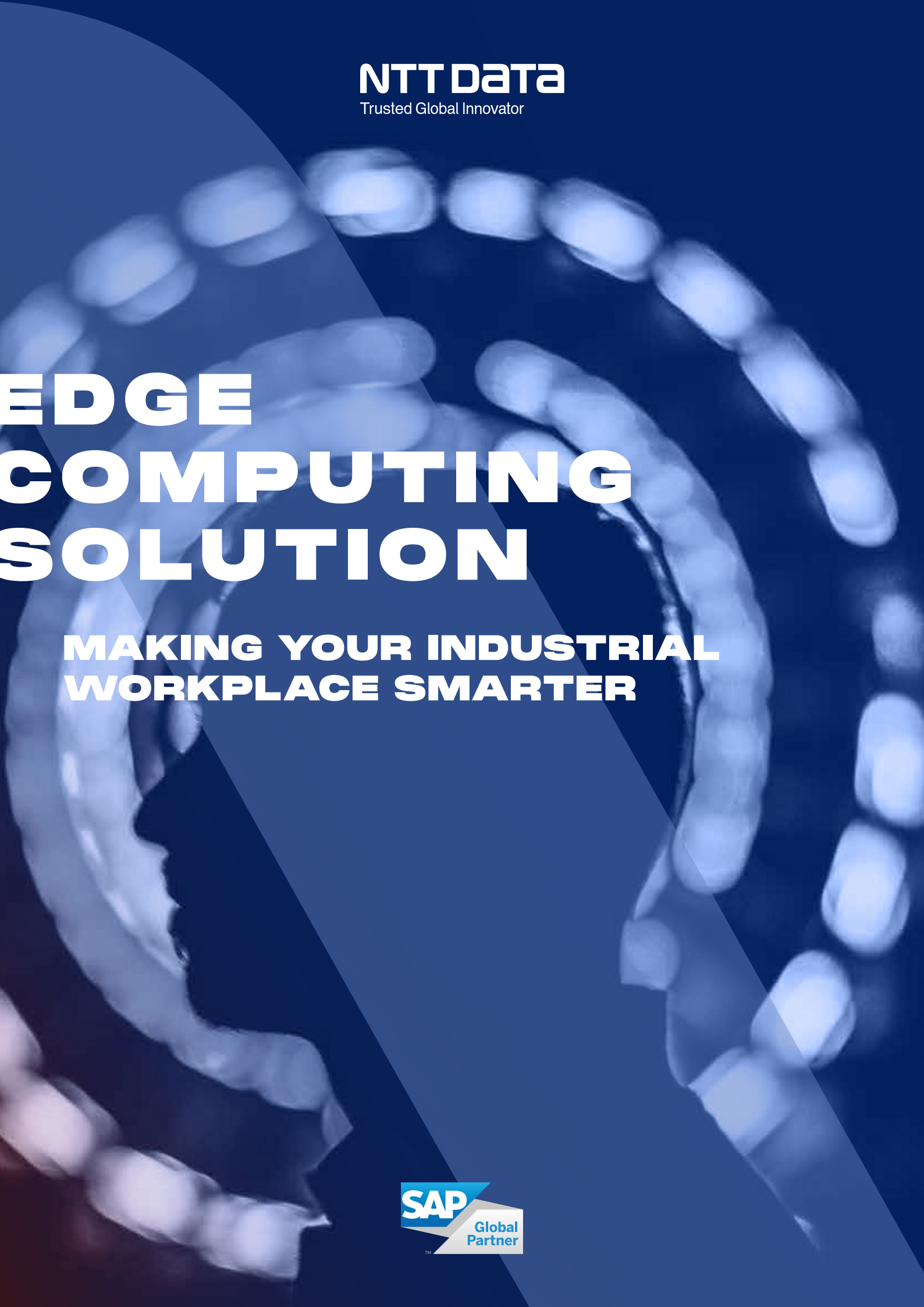
NTT DATA
Trusted Global Innovator



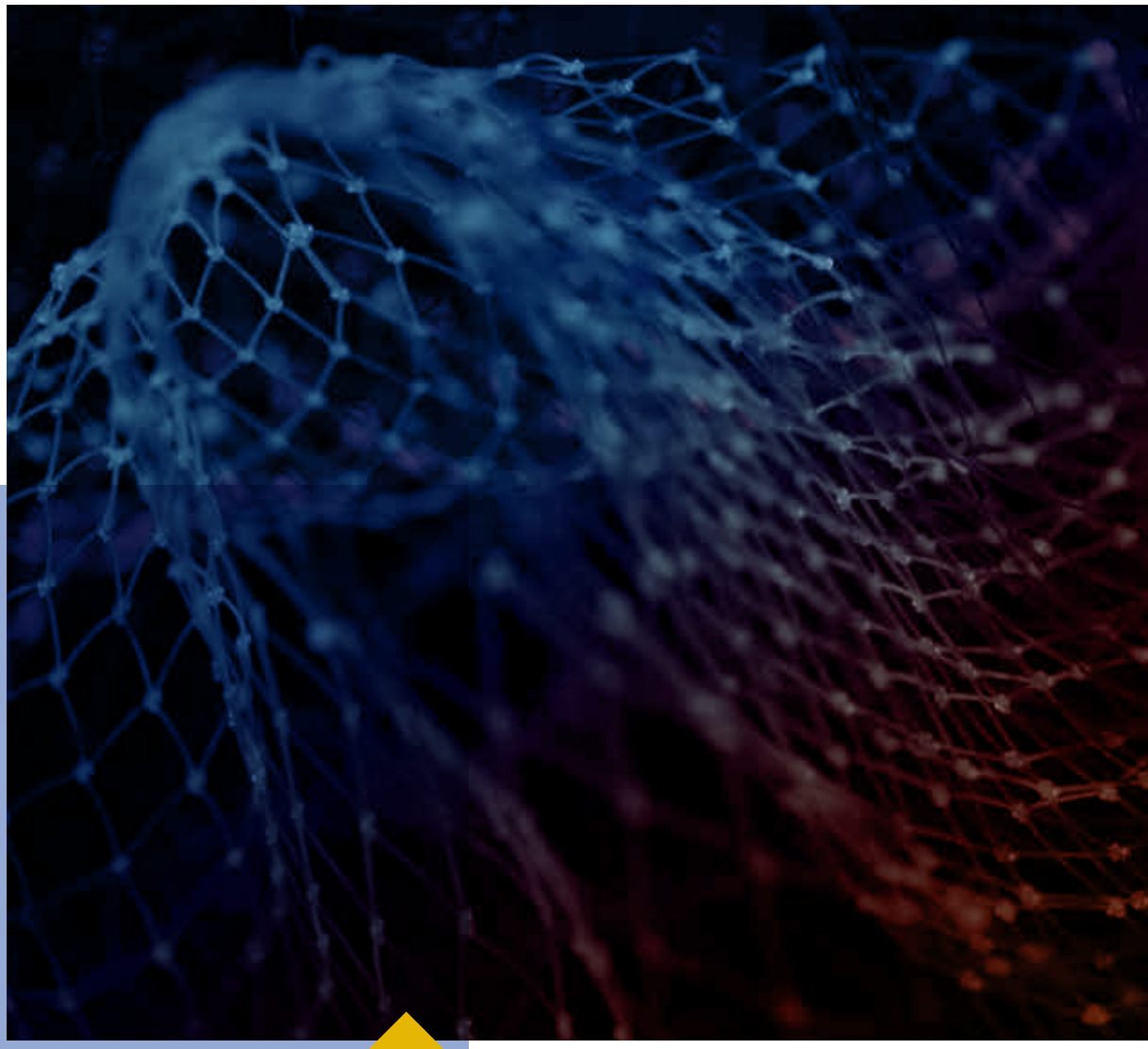
EDGE COMPUTING SOLUTION

MAKING YOUR INDUSTRIAL WORKPLACE SMARTER

SAP Global Partner

WHAT IS IT?

The NTT DATA Edge Computing Solution helps make smart factories a reality by enabling manufacturers to create more agile and automated production environments by integrating assets and devices at the edge of network, so reducing the limitations of using just the cloud. It combines the responsiveness and security of edge devices with the benefits offered by centralized cloud-based resources for back-office integration, data storage, processing of large data sets, predictive and machine learning, and artificial intelligence.



THE BUSINESS CASE

The Industrial Internet of Things (IIoT) refers to the interconnection of sensors, production assets and other equipment with embedded digital technology to boost operational efficiency and helps manufacturers overcome the “islands of automation” that have traditionally characterized production processes.

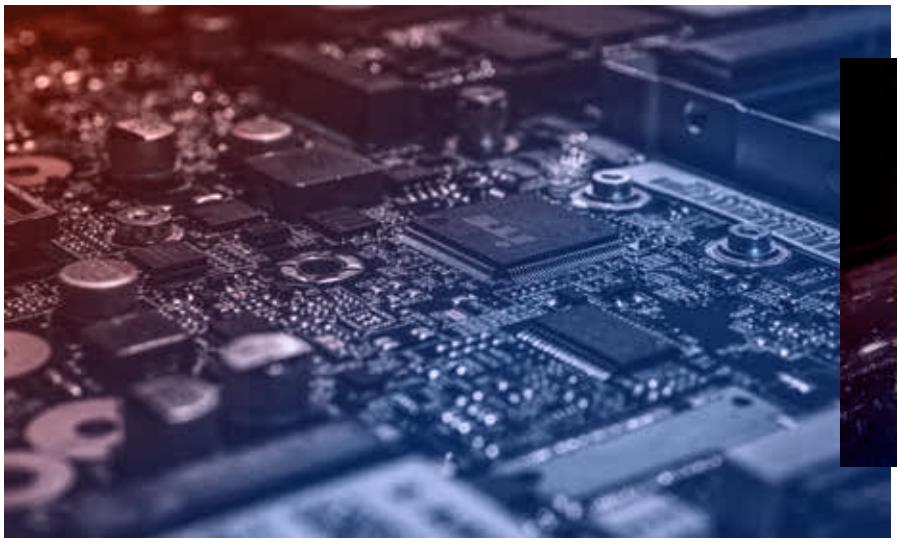
These machines may be distributed over a wide geographic area or even across countries, yet even if the manufacturer only has one factory, there are still challenges in handling the large amounts of data generated by production assets, sensors and other devices in a “smart factory”.

Storing, processing and analyzing in the cloud all the data produced by IIoT equipment may be inefficient as much of the data is probably of limited value because it is obsolete.

To support mission-critical IIoT applications, it is essential that the network architecture can collect data and act on it in real time. If a machine is overheating for example, a second’s delay in switching off the machine may cause irreparable damage.

Another concern for manufacturers looking to adopt IIoT is cybersecurity as there have been many high-profile cases of hackers deliberately targeting industrial installations. Using public cloud services or external data centers to host certain IIoT data and applications may expose the manufacturer to additional security risks.

NTT DATA’s Edge Computing Solution overcomes these challenges by enabling manufacturers to integrate their production assets in the cloud while enjoying faster response times, improved data security and increased reliability even in situations of intermittent internet connectivity.



IIOT AND EDGE COMPUTING

Edge computing is the term given to the deployment of data handing and processing functions close to the source of the data. In that respect, edge computing is similar to distributed computing, a model that has been around for decades in the IT industry, with the resources distributed around the network edge.

Because of the special requirements of IIoT, there is growing interest in using edge computing to overcome various drawbacks associated with using just cloud infrastructure for IIoT applications. For example, latency is reduced dramatically with edge computing, and some data analytics is made easier as data is processed at the edge of the cloud, rather than being aggregated with other data and sent to a cloud data center that may be in a different country.
As the data is stored and processed at the edge of the network either by the IIoT device or by legacy devices enhanced with edge computing capabilities, manufacturers can analyze most data locally and only send the most valuable data or summarized data to the cloud. That saves on cloud storage costs and also reduces the workload for the cloud-based analytics application.

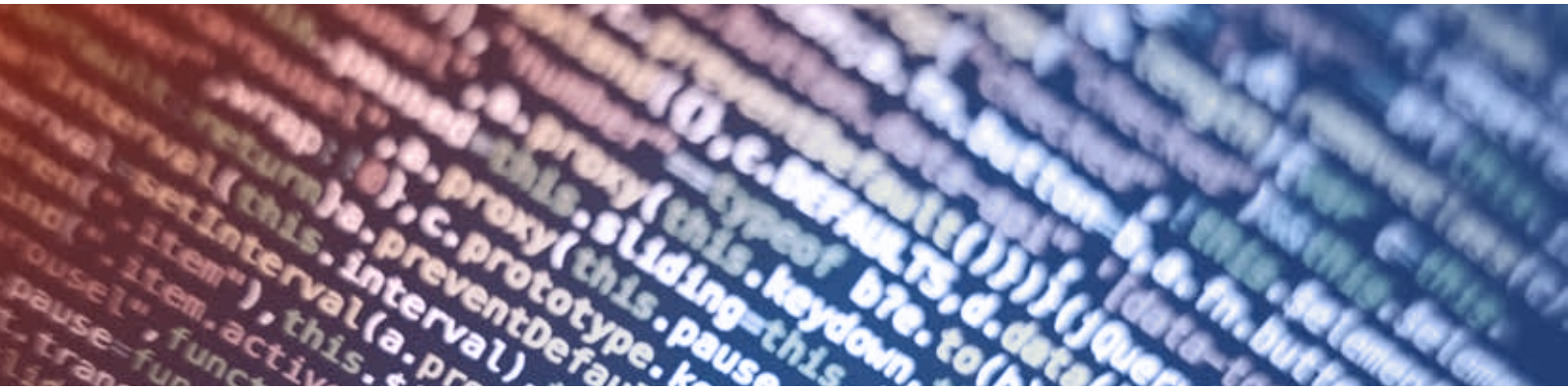
Cybersecurity concerns are also less significant as it is much easier to keep data and machines secure if data does not have to travel backwards and forwards over the internet. By keeping data manipulation local, IIoT devices operate largely independently from one another, collecting, processing and discarding data that is no longer of value, and only sending to the cloud a subset of data that is of value for further processing, storage or analysis.

NTT DATA EDGE COMPUTING SOLUTION

Main Features

NTT DATA Edge Computing Solution supports:

- IoT services.
- Big data processing.
- Anomaly detection.
- Predictive analysis.
- Data visualization via dashboard.
- End-to-end cloud integration (from sensor to SAP S/4HANA business process.



How it works

NTT DATA's Edge Computing Solution integrates edge computing devices, SAP IIoT and the SAP Business Technology Platform, which gives businesses the ability to build, manage, and deploy applications and connect data and business processes on one integrated platform capable supports cloud, edge or hybrid architectures.

When combined with SAP S/4HANA, the NTT DATA Edge Computing Solution extends the capabilities of traditional ERP/MRP platforms used in manufacturing into areas such as IIoT integration, big data processing, machine learning, anomaly detection and predictive analysis.

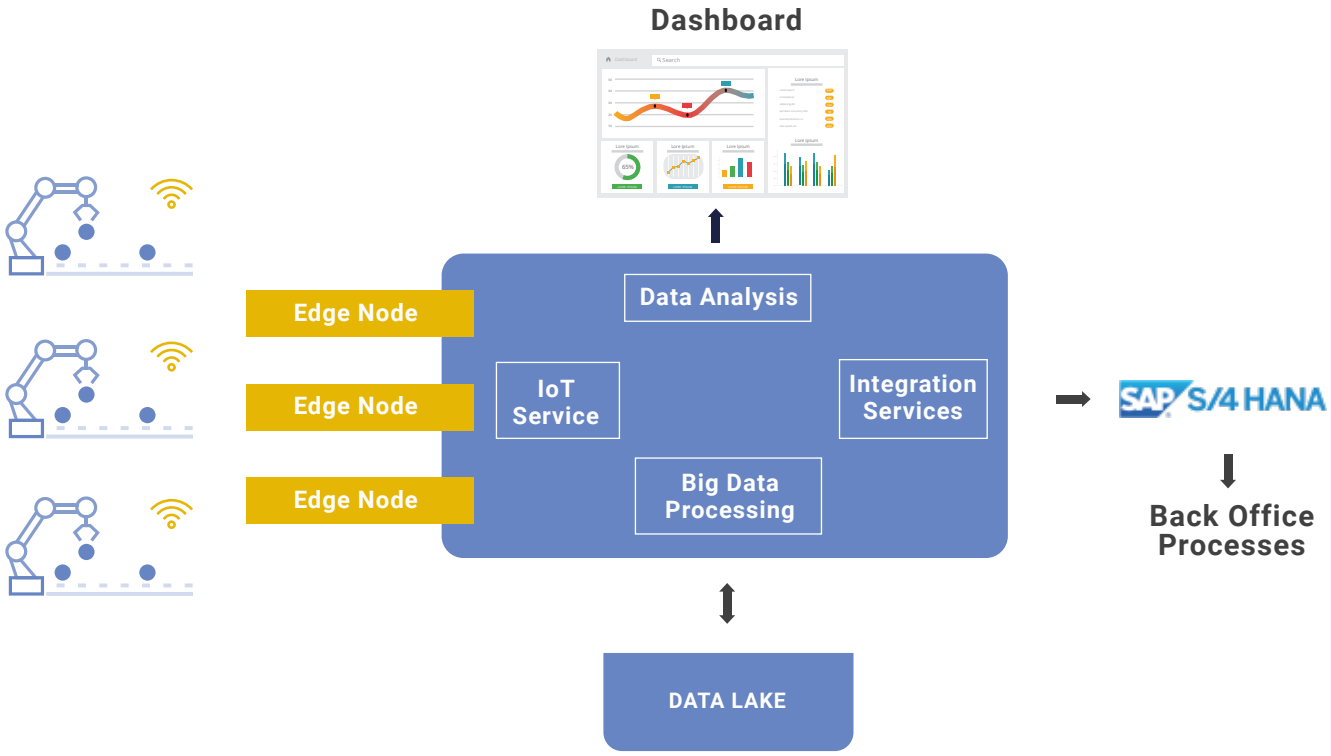
These expanded capabilities open up many new possibilities for manufacturers to intelligently manage the wealth of data generated by their production assets at the network edge, where it can be used to drive real-time decision making , or preprocessed prior to being sent to the cloud or the ERP system.

Use Case 1: OPTIMIZING MAINTENANCE

The failure of just one machine on a product line can result in costly downtime, lost production and unhappy customers. Predictive maintenance aims to predict the chance of failure before it occurs by using machine learning to analyze the wealth of data produced by the sensors monitoring the machine. By integrating edge computing capabilities, the maintenance procedures of IIoT devices can be automated and action taken earlier to prevent a critical failure. In the case where human intervention is needed, the tasks for assigning technicians and reserving spare parts can be done by the back-office ERP.

Use Case 2: LIGHTS OUT FACTORIES

IIoT devices produce large quantities of data that have to be continually analyzed if operations are to be optimized. Sending this data to centralized systems for decision-making increases latency, slows down responsiveness and may not possible at all times in areas where internet connectivity is intermittent. With edge computing, decisions can be taken by edge devices, so eliminating communication and processing time lags, and enabling true “lights-out” operation, with minimal human contact, if required.



BENEFITS

- Reduces unplanned downtime and detects hazardous incidents faster.
- Greater data security and privacy.
- Latency-sensitive data can be processed at origin for better performance.
- Saves on cloud computing processing and storage costs.
- Reduces the load on network.
- Improved resilience in case of intermittent connectivity.

System requirements

- SAP IoT.
- SAP Business Technology Platform.
- SAP S/4HANA.

WHY CHOOSE NTT DATA FOR YOUR SAP AUTOMOTIVE PROJECT?

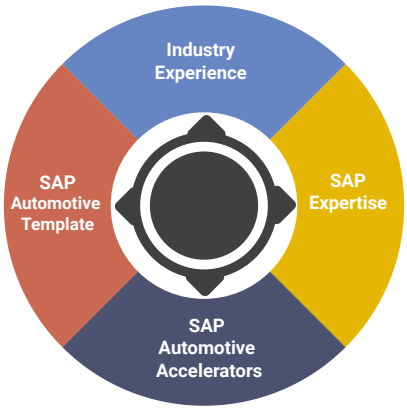
NTT DATA has worked with the automotive industry for 45 years and we currently serve more than 85 OEMs, suppliers and dealerships.We understand the challenges and the needs of enterprises in this sector and we have considerable experience creating innovative solutions that deliver sustainable business value for automotive companies, so helping them achieve a competitive advantage.

To accompany automotive companies on their SAP S/4HANA journey, NTT DATA has a team dedicated to S/4HANA transformation and an S/4HANA Center of Excellence that establishes the most appropriate evolution strategy for companies that want to evolve to S/4HANA and other SAP solutions, platforms and technologies.

NTT DATA has developed a SAP Automotive template for S/4HANA and accelerators to help automotive companies overcome specific challenges and reduce time to value.

- Fully customized SAP S/4HANA system. including all core areas such as finance, procurement, sales, logistics, production.
- Includes new SAP modules such as eWM, IBP, TM, VMS etc.
- SAP Business Technology Platform and Cloud Integration.

- SAP JIT/JIS.
- Supply Chain Control Tower.
- Edge Computing Integration via SAP Business Technology Platform.
- Smart EWM High-Bay Racks.
- Individualized Production.



- NTT DATA has been serving the automotive industry for more than 40 years.
- NTT DATA has more than 10,000 IT consultants serving 85 clients in the automotive value chain including OEMs, suppliers and dealerships.

- 29-year partnership with SAP.
- Over 5,000 active SAP clients.
- Leading SAP partner with over 300 SAP S/4HANA projects.
- Resource coverage in over 58 countries.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