SAP S/4HANA FOR AUTOMOTIVE SUPPLIERS

Powering innovation and resilience in a time of unprecedented change in the industry

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INTRODUCTION

Can SAP S/4HANA give your automotive organization the boost you need to stay relevant?

The European automotive industry is unique globally. According to the European Automobile Manufacturer Association, it provides an estimated 2.7 million direct manufacturing jobs and produces approximately 93 million motor vehicles each year. Compared to the US (approx. one million jobs, according to the US Bureau of Labor Statistics) or China, which are the other two main markets for commercial or passenger vehicles, Europe's automotive industry is unmatched in terms of globally connected supply chains and a high degree of innovative power. To retain a leadership position, no OEM can afford to ignore the new technologies transforming the manufacturing landscape, such as autonomous driving, electric power trains, vehicle connectivity, new service offerings, increased sustainability, and smart factories.

OEMs must adapt to constantly changing market conditions or face significant ramifications. In the worst case, an entire business segment can be shut down, for example if certain technologies are banned, or due to disruptive technical changes, or even as a result of simple capacity adaptions or consolidations of production facilities. In the best-case scenario however, a supplier can maintain a strong position, being able to generate a technical or economic competitive advantage for the required components and providing (new) services that create additional value.

WHY IS SAP S/4HANA IMPORTANT FOR YOU?

By and large, the relationships between the OEMs and the tier-one suppliers run smoothly. But, how to cope with these new realities?

New trends, or simply economic necessity, require a new way of thinking about your future as a tier-one, second-tier, or even third-tier supplier. With SAP S/4HANA, you can build a digital core to design, manufacture, and deliver products/component groups or services and become a truly digital, renewed, frictionless enterprise. Additionally, a S/4HANA core, seamlessly connected to satellite systems, can play a vital role in customizing your existing or new ERP-system in a business network.

But the question of how to integrate the right components along the value chain and how to use them with the right setup of end-to-end business processes to really deliver value and secure the future, remains.

WHAT IS THE SCOPE OF THIS WHITEPAPER?

This paper outlines the major issues for automotive suppliers and provides answers to basic design decisions. It is not intended to offer a holistic blueprint for your company because we recognize that the business processes, corporate strategies, and challenges each company faces differ and require deeper analysis and a customized approach.

The following content is structured along the design-to-operate end-to-end process and includes an excerpt on relevant product costing and finance topics. This does not cover the entire company but rather the core process of each automotive supplier.

Automotive Supplier Engineering and Manufacturing Technology Network

Stable parts delivery with aligned demand network control and n-tier capacities alignment

Automotive S/4HANA Platform and IT Business Network

Integrated engineering and technology sharing to ensure competitiveness within contractual boundaries

Automotive Original Equipment Manufacturers

Customer Base

Service Provider

Provides vehicles, (spare) parts as a service

End Customer
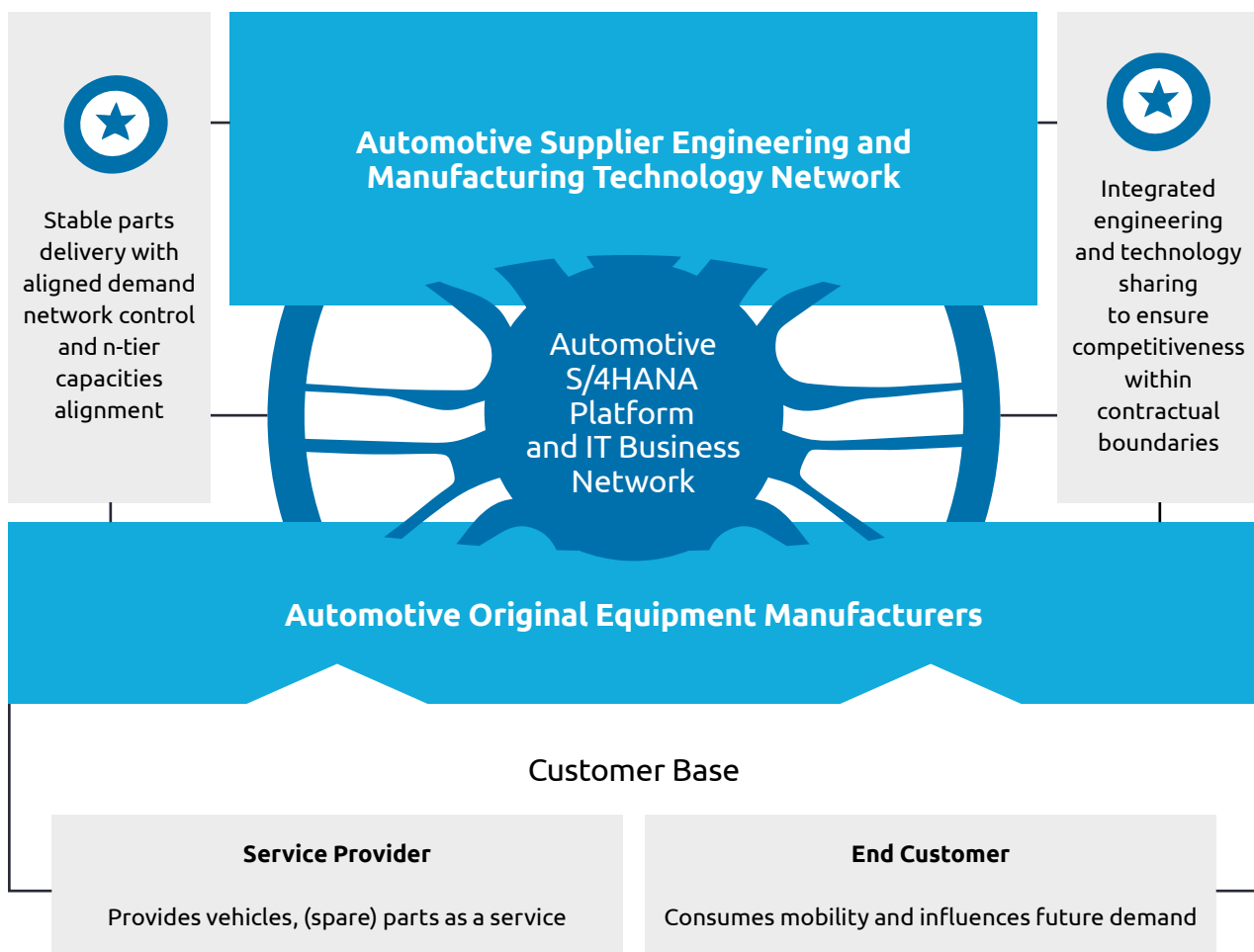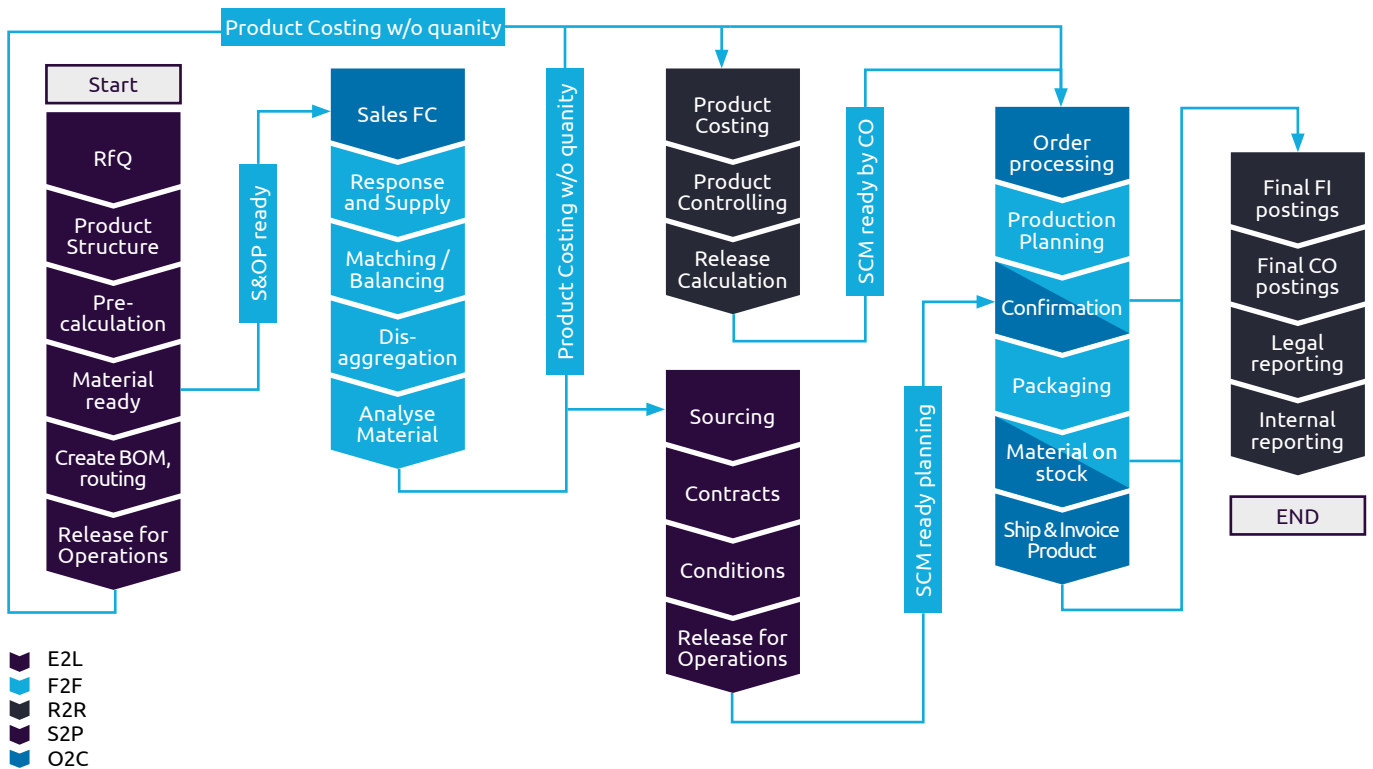
Consumes mobility and influences future demand

Figure 1: SAP ensures common data standards for supply chain, manufacturing and engineering

E2L = Engineer to Launch | F2F = Forecast to Fulfill | R2R = Record to Report | S2P = Source to Pay | O2C = Order to Cash

Figure 2: Simplified end-to-end process overview and necessary integration points

The integration of business functions is important because all functions are interconnected. This is not new to S/4HANA but neither is it systematically the reality for each supplier. It is not uncommon for PLM functions to be separated from production, which means the handover of engineering changes does not work well or reflect "time-to-market" requirements from the automotive OEM or supplier down to the shop floor. Quality functions or plant maintenance processes are another example of suppliers struggling to find the right ingredients for proper integration to save time and money and become a truly intelligent enterprise.

SEVEN WAYS S/4HANA CAN HELP AUTOMOTIVE SUPPLIERS UNLEASH INNOVATION

There are seven essential design considerations that apply to every automotive supplier, no matter on which tier in the supply chain the company is located or what product segment it develops, produces, ships, and settles along the value chain up to the OEM.

1. Product and service design over the lifecycle

One big question for each supplier is which PLM system, or systems, they should use and how to integrate it (or them) into S/4HANA. PTC Windchill, Siemens Teamcenter, and SAP's PLM, in combination with additional industry-specific expert software, are the typical weapons of choice. There are no specific recommendations for each solution because this depends on your current landscape and your corporate R&D strategy.

However, there is a clear general trend in the industry to rethink both strategy and the future PLM vs. S/4HANA-setup. This is needed to meet future demands and to fulfill Industry 4.0 and digitalization road maps (for example, integration of product specifications from PLM systems directly to manufacturing execution).

A second trend is to incorporate early design data (bill of materials, routings, software, etc.) ahead of time into the product costing to ensure profitability throughout the life cycle. At Capgemini Invent, we recommend calculating the products in S/4HANA from the beginning of the pre-series phase and performing frequent updates as soon as there are changes in the product structure. Before pre-series, you must weigh your requirements against an additional system, such as SAP's product life cycle management, for product costing purposes. Alternatively, you can calculate early in S/4HANA, but this requires the creation of master data very early, which is not possible in every case.

The third obvious trend is to create digital twins and use the available data for operations. S/4HANA, as ERP system and Manufacturing Executions System (MES), can leverage this data to an unprecedented extent to reduce costs and complexity and to be frictionless in operations. For example: data needed for sales and operation planning, for calculation, and for steering the shop floor is seamlessly available and must be leveraged by the workforce accordingly.
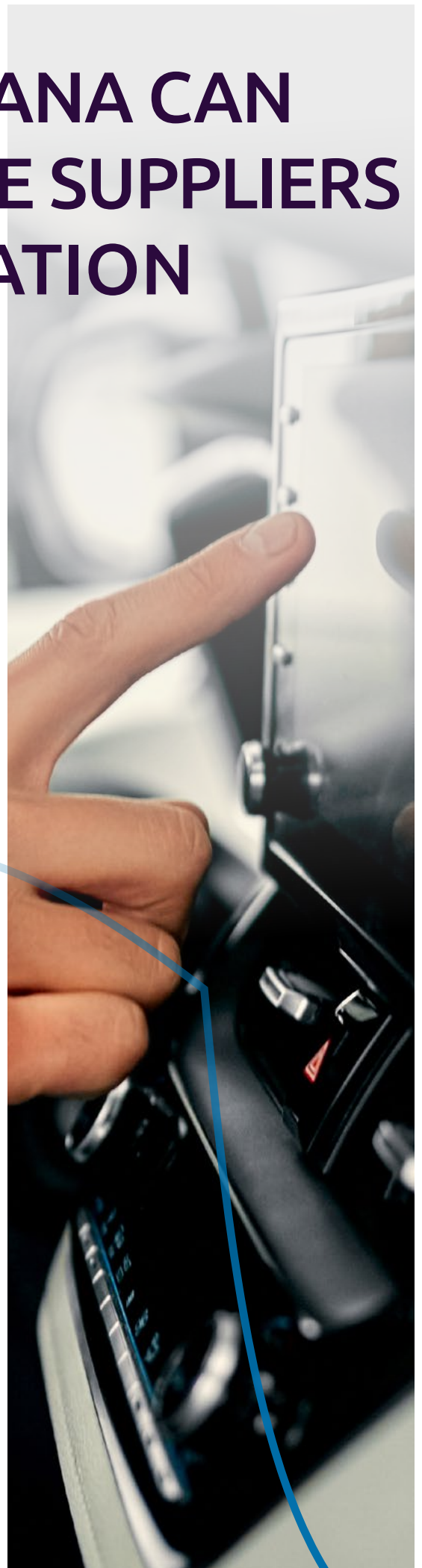
2. Sales and operations planning as the starting point within your value chain network

SAP IBP (Integrated Business Planning) for demand is SAP's go-to product when we are talking about either pre-series or series global demand, integrated sales, and volume planning for your products. But it doesn't have to be SAP's IBP in all cases unless you are in an early phase of an (unfinished) SAP APO DP rollout. In that situation, we recommend switching to SAP's IBP solution immediately.

What's more important is the need to react if the provisioning of sales forecast data from your customers is not sufficient for the required time horizon (minimum 12 months), or if the data is incomplete, granular, or incorrect and you cannot perform a reliable yearly forecast.

Common planning horizons (medium, and long-term) must provide a clear view on global supply network integrated material flows for pre- and series parts. That's nothing new. However, newly available technology enables continuous touchless planning, which allows the system to adjust planning data if it is incorrect.

With machine learning for example, AI-powered "demand sensing" is standard. These technologies are used in other industries (for instance, consumer-packaged goods), and should be used in the automotive industry as well. This would reduce manual work and save time and money. Unilever, for example, has used demand sensing since 2009, resulting in a 25% decrease in forecast error, and a long-term impact on profitability.[1]

There are two ways of correcting data in the short term: correct it in IBP (or similar application) or, correct it in S/4HANA, with respective correction synchronization of the data back into the advanced planning appli-cation. This may sound like a minor detail but, due to frequent changes of delivery quantities (call-offs) from the OEM, it is important for proper planning data and for the person responsible for the quality of the customer data.

Another clear trend in the industry is having a single demand- (or so-called value-) planner responsible for the

entire value chain, from incoming demand to final delivery to the unloading point at the customer's plant. Yet some suppliers still only have one planner for global demand, one for plant-dependent demand, and one for outbound delivery demand. This is an outdated approach.

Today, it is easier than ever to create robust, consistent, and reliable sales volume figures via extended or augmented data analytics. Failure detection is cumbersome in the case of inconsistencies or manual corrections after an Excel download and upload. That's why the scope of a value planner can be widened to fulfill the requirements from OEMs to deliver just in time or even just in sequence, and to provide sufficient fore-cast for the supplier for long lead items. In addition, cloud and mobile solutions for planning applications that S4/HANA can enable allow safer and more convenient remote work for the value planner. This is so important during COVID-19 and can leverage further cost savings for the organization.

During project acquisition, it is important to determine the planned volume for the project lifecycle at the outset. This data can also be taken over as the basis for the first product calculation in S/4HANA, either via IBP, SAP's product lifecycle costing, or something similar. In iterations, the calculation for self-production and external procurement can be

calculated automatically using the S/4HANA database. This principle is not new, but neither is it commonly applied. However, the industry tends to include real-time or market data, i. e. for volatile raw materials, depending on whether or not you are hedging them. SUC data can be lever-aged not only for supply chain matters but also for product calculations. If

you do not do this, you may make the wrong decisions or even misinterpret facts due to a lack of transparency, thereby undermining the profitability of your project. S/4HANA offers the right capabilities for real-time simulations with very limited effort needed to incorporate external data sources to minimize risk and increase transparency in your company.

3. Continuous supply and demand balancing

Regularly balancing constraint demand with supply operations is nothing new. However, because SAP will retire its S&OP in the S/4HANA core, it does not make sense to invest in this solution. Although it may be tempting to use this function since it is free (as part of the core), doing so may lead you to miss out on industry trends and become less competitive than rivals who are doing things differently.

The key here is "collaboration." Automotive OEMs strive for new forms of digital supply chain collaboration to exchange forecasts, inventory information, and capacity data to achieve complete supply chain visibility that is integrated within S/4HANA. This collaboration platform can also be performed with suppliers across key supply chains in real time. The trend is clear, with a shift from an inward monitoring of supply chain data to a broader external view on supply network data – the anticipation and resolving of supply issues with corresponding dashboards are the future.

4. Instant data flow, from the shop floor to the top floor

Three significant questions every automotive supplier faces are:

- Which system to use for the detailed scheduling

- How to handle stock-level information on the production line

- How to interact with existing or new manufacturing execution systems.

SAP has embedded a detailed scheduling solution (PP/DS) into S/4HANA, giving every supplier the chance to rethink their current strategy on how to split the functionalities between S/4HANA and MES. There is no clear trend so far, but the embedded solution offers a significant advantage due to better data integration compared to any external solution.

If you must deliver just in sequence (JIS), there are various third-party solutions available on the market as add-ons for S/4HANA, unless SAP renews its JIS module to meet more automotive processes. Moreover, JIS integration with SAP's extended warehouse management makes sense. However, apart from third-party solutions, there's nothing readily available yet. Therefore, there's no clear trend in the automotive industry other than the urgent need to provide standard solutions.

Industry 4.0 solutions foresee visibility for stock levels on production lines on the shop floor as much as each S/4HANA capability can provide it. Automatic reordering of materials, process stability, and secure production supply requires accurate data. Therefore, the question of how to set up intelligent production integration in cooperation with machines, stock management systems, ME systems, and S/4HANA, needs to be carefully considered in order to reach the next level of automation. The trend is clear: S/4HANA plays a major role in the digitalization of the shop floor and must be leveraged accordingly.

Real-time confirmation is a must for Industry 4.0, not only for production or shipment, but also for the controlling and finance settlement to enable proper reporting to the plant or business unit management level. The trend is also clear here: S/4HANA is the enabler for the digital boardroom when we are talking about the cost of manufactured or sold goods.

In addition, your setup is crucial to build the foundation to use artificial technologies at scale – for example, failure prevention, defects, and safety-critical events or, simply, safe energy. For all use cases, industrialized, trusted, and quality data is necessary.

5. State-of-the-art of intelligent sourcing and delivery monitoring

The COVID-19 pandemic has made it clear that basic sourcing processes offered by S/4HANA, accompanied by self-service functions via FIORI apps, are the de-facto standard now. However, these measures are insufficient to form a resilient source of supply in the event of emergencies. They may help to determine current issues via alerts, ideally in real time, but this provides little guidance on how to react. Collaboration with your supplier must be enabled with your S/4HANA implementation to improve visibility and problem solving, for example in the case of transportation, product quality issues, or capacity constraints. In addition, new technologies must be enabled to make your supply chain resilient. Consider incorporating weather forecasts, traffic jam information, global track-and-trace capabilities,

the prediction of delivery delays, and any kind of data that positively or negatively influences your supply chain resilience.

A key requirement in sourcing the above-mentioned collaboration and data insights is the quick onboarding of new suppliers. Cloud platforms offer state-of-the-art solutions to qualify new suppliers, leverage their supply capabilities, and streamline onboarding and the whole purchase-to-pay process. Cloud platforms are also useful when it comes to monitoring inbound deliveries via track-and-trace solutions. There's no need to develop track-and-trace solutions within the S/4HANA core. Many suppliers offer standard solutions out-of-box solutions that can be connected to your S/4HANA system to leverage the standard FIORI

apps and new SAP features, such as "situation handling." On top of that, control towers with data-driven insights must be applied to be best-in-class in the automotive industry today.

Another technology-enabled lever that should be applied is AI-driven functions that you can apply to accounts payable to streamline the process and achieve best-in-class benchmark values. The simplest form of AI, robotic process automation (RPA), can be used for incorrect invoices, while high-end machine learning algorithms can be applied to clear the GI/IR clearing account. Both cases reduce manual workload and save money, mainly in the back office.

6. Next-generation outbound processes

Every automotive OEM has specific requirements for how to establish just-in-time or just-in-sequence deliveries despite global norms such as the German VDA (Verband der deutschen Automobilindustrie). Handling Unit Management is the de-facto automotive standard, but here too, application differs from OEM to OEM. However, all automotive suppliers can improve outbound processes to reduce costs and avoid failures during picking, packing, and providing delivery advice by adopting the new standards that S/4HANA with embedded extended warehouse management offers.

The track-and-trace solutions that must be applied in the inbound process should also be used for outbound processes. This is not only technically feasible, but necessary. From a business process perspective, you must harmonize the inbound

and outbound processes (which are basically the same procedure, but in reverse) within one product/process team to streamline them and save money.

The paperless factory is not yet a reality. However, the Industry 4.0 initiatives mentioned above and the S4/HANA capabilities in combination with available cloud solutions mean that printing originating on the shop floor can be kept to a minimum, saving money, increasing customer satisfaction, and bringing you to the next level. This does not mean that a completely paperless approach is not on the agenda for both OEMs and suppliers – indeed, the opposite is true. However, there is always an economic view on how much you can spend on RFID tags or smart labels and whether they are required in every area.

7. Tight and frictionless finance and controlling integration

S/4HANA offers revolutionary finance capabilities, including predictive accounting, advanced financial closing, universal journal, unified planning model, new asset accounting, and group reporting. However, automotive suppliers must select the right application based on their products and production assets.

S/4HANA analytics capabilities should be used to determine deviation between plans and actual costs, at least at the product group level, to assess whether you are on track with your signed business case over the life cycle of your products. Detailed near-real-time analysis is necessary

and possible with S/4HANA, enabling you to see if you deviate in terms of material costs, labor costs, equipment use, or plant overhead.

The ability to integrate asset management in terms of investment management and plant maintenance must be leveraged to determine target costs from the onset of a project. What is true for product costings also applies for asset management: as soon as pre-series data is compiled, asset data must be integrated in order to close the loop with manufacturing direct costs and become a true intelligent digital

company that has all related product costs under control.

A few words on sales and profit controlling: your external customer product structure must be the basis of your segment reporting in S/4HANA or central finance applications despite your internal corporate business unit structure to generate true profit & loss statements. Only by applying this philosophy can profitable products and services be identified.

BECOMING A RENEWABLE ENTERPRISE

Even in times of budgetary constraints caused by the COVID-19 pandemic and unprecedented disruption in the automotive industry, it is time for suppliers to reinvent themselves by rethinking their way of working and challenging their business or target operating models. We call this the Renewable Enterprise – an enterprise capable of continually growing and adapting to new and changing business requirements. To achieve this, automotive suppliers need to address their ERP system landscape, their performance management, and how they set up their enterprise for the future. Now, is the time to define that future with Capgemini Invent and SAP S/4HANA.

HOW WE CAN HELP

Our suite of solutions powered by S/4HANA is specially designed to help automotive players quickly react to change and enter new markets. These are offerings leveraging the software capabilities of SAP S/4HANA® Cloud and SAP Cloud Platform but coaxed into their fullest expression by Capgemini's global automotive expertise. They accelerate ROI through our assets such as AutoPath and AutoCloud and allow OEMs to maximize their investments in the cloud, see benefits faster, and meet the challenge of unprecedented industry disruption.

To learn more about how we can help your organization continually innovate, improve efficiency, and play a key role and gain relevance in the new automotive paradigm, visit:

https://www.capgemini.com/news/capgemini-launches-offers-for-automotive-suppliers-using-sap-s-4hana-cloud/

or:

https://www.capgemini.com/service/s4hc-for-automotive-suppliers/

SOURCES:

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About
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