Supply Chain Planning in the Intelligent Enterprise
Predict and Fulfill Market Demand Profitably
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SAP Integrated Business Planning helps us improve inventory placement to maximize sales revenue opportunities, while minimizing working capital at Syngenta. And with a reduction in time spent forecasting each month, we can focus more on servicing the farmers and channel partners who depend on us.”

—Austin Parrish, Head of Business Planning, Syngenta
Executive Summary

Always on, connected, and informed, customers are demanding high-quality, individualized products delivered within increasingly shorter time frames and with predictable availability.

For companies, meeting these market requirements call for the realization that a great customer experience depends on a delightful product experience – and both factors are evolving every minute of every day. Customer demand needs to be understood and predicted in real time and translated to design, manufacturing, logistics, and operations teams, which requires a digital business plan that intelligently sets the pace and is constantly adjusting.

By running as an intelligent enterprise, companies are putting their customers at the center of everything they do, while breaking down functional silos in their processes. In return, they can achieve much higher levels of service, efficiency, and optimization, while enabling entirely new business models.

Many organizations are on a journey to digitally transform their supply chain processes and gain market share. Real-time data for the customer experience and operations have become digitally available to predict, plan, and drive goods through the supply chain more sustainably, profitably, and just in time. Traditional boundaries around planning horizons, cadences, and layers of propagation have been replaced with a truly integrated approach for strategically viable and optimized – yet highly resilient and responsive – supply chains.

SAP is uniquely positioned to help companies achieve a much higher degree of business performance by digitally linking strategic and operational supply chain planning with real-time visibility, response, and execution. Embedded optimization of resources and inventories across the supply chain not only decrease working capital, but also enable a more sustainable operation.

Infused with self-learning technologies, our solutions accelerate decision-making and support a more touchless supply chain – all of which are foundational hallmarks of the Intelligent Enterprise.

16% shorter order fulfillment lead time where constraint bases supply planning process is run at regular intervals.
SAP Performance Benchmarking n = 271

36% lower revenue loss due to stock-outs where forecasts are run for combinations of SKUs and inventory locations.
SAP Performance Benchmarking n = 239
Design to Operate for Planning

SAP® Digital Supply Chain solutions fully deliver on the aspirations of the Intelligent Enterprise for companies worldwide. From design to asset management, your business can provide positive customer experiences by integrating across traditionally siloed areas that include R&D, manufacturing, supply chain planning, logistics, and aftersales service and maintenance.

By connecting everything digitally, your company can perfect its operational reality as much as possible.

1. Design with your customer in mind
   In the design phase, you need a high level of connection to monitor trends and innovate in the direction your customers want. Increasingly, organizations want to design smarter – for example, Industry 4.0-enabled products and assets with built-in sensors to capture real-time data once they are in use in a live environment. It’s also important to think in terms of compliant product lifecycle management, which requires full integration of product development with the supply chain.

2. Plan with visibility across silos
   To become more responsive and shorten planning cycles, your organization should connect across departmental silos. This approach provides a unified view of real-time supply and demand that helps balance inventory and service levels. Furthermore, planners gain synchronized planning processes that break down silos and tools to run simulations quickly for better decision-making – therefore accelerating planning cycles and reactions to change.

3. Manufacture with flexibility, speed, and efficiency
   When it comes to manufacturing, sophisticated digital supply chain competencies and connectedness can help you increase shop-floor visibility, identify process bottlenecks, and manage operations with greater agility. This tactic facilitates smart factory capabilities, where rigid production lines are transformed into flexible manufacturing cells. In return, your business can shift from mass production to mass customization.

4. Deliver on time
   The delivery phase in the supply chain can make or break the customer experience. With Industry 4.0 capabilities, your organization can streamline logistics and help ensure better delivery experiences. Connected vehicles, for example, can optimize

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delivery routes based on real-time weather and traffic conditions, support real-time tracking, and monitor conditions such as the temperature in cold chains. Meanwhile, next-generation warehouse technology leverages robots and augmented reality to assist staff, increase productivity, and get goods to customers faster.

5. Operate with new business models
Finally, many organizations are transforming the operating phase by plugging IoT-connected assets directly into the digital supply chain. This move can drive new business models, where the manufacturer owns the asset and charges customers for usage, uptime, or any other metric. With such a model, the manufacturer is responsible for providing cost-efficient maintenance services, which is now possible with advanced analytics capabilities such as asset health monitoring, issue prediction, and proactive response.

Effective digital supply chains are integrated from design to operate and ultimately run more like a network. Visibility, communication, planning, analysis, and execution are orchestrated across essential operational phases based on real-time inputs and requirements. Moreover, work and data flows span functional silos, leading to greater flexibility and consistency. Additional benefits include reduced financial and operational risk through early detection and higher customer satisfaction with faster issue resolution.
Planning in the Intelligent Enterprise

Running as an intelligent enterprise that is competitively responsive requires a platform that lets your workforce detect demand changes in real time and support effective response. Doing so standardizes and integrates supply chain processes for demand and supply planning as well as collaboration with suppliers, distribution partners, and customers. Additionally, by integrating disparate systems and handling massive volumes of data associated with a global supply chain, you can realize operational and planning efficiencies that lead to lower costs and improved performance.

An intelligent planning platform should support crucial supply chain functions such as:

**Collaborative sales and operations planning (S&OP)**
S&OP needs to move from an insular process executed within planning silos to one that reaches out to include all planning constituencies on a more continuous basis. A robust platform helps pull all relevant partners – inside and outside of the organization – into the planning process, where fast, collaborative interactions are based on a single source of trusted data.

**Response and supply planning**
To respond more effectively to demand fluctuations and supply disruptions, platforms should allow a mix of multilevel demand and supply matching and rough-cut capacity planning with embedded analytics, exception management, and identification of gating factors. These capabilities can help prioritize demand better, generate effective allocations based on delivery promises, and improve response management.

**Inventory optimization**
A platform that supports multi-echelon inventory optimization can reduce working capital investments and improve service levels by helping you plan inbound raw materials and finished goods in distribution centers more effectively. You can establish optimal inventory targets that enable you to maximize profits while leaving a buffer to help you meet unexpected demand.

**Demand planning and sensing**
By mixing data on historical trends and seasonal patterns with, for example, live sell-in and sell-through data, you can sense shifts in demand in real time. Statistical models can help you develop accurate midterm forecasts, while demand-sensing capabilities enable you to react to near-term demand changes as they occur. You can also use machine-learning technology to identify correlation patterns and automate the detection of demand changes.

**Demand Driven Replenishment**
The solution supports the innovative demand-driven material requirements planning approach, using actual demand instead of error-prone forecasts to drive replenishment through a decoupled supply chain. This allows you to dampen the effects of demand and supply variation in your supply chain by calculating inventory buffers and assigning and managing those buffers at strategic decoupling points. You can increase visibility and enable demand-driven prioritization of supply based on actual buffer status.
Supply chain collaboration
Information typically flows easier upstream than downstream in supply chain networks. Next to communicating forecasts and demand information upstream to multiple tiers of manufacturers and suppliers, it is also important to obtain more real-time information. Monitoring and sharing manufacturing status, on-hand inventory, and order positions of trading partners leads to better and more informed decisions. Highly effective companies that leverage the power of business networks achieve scalability and ease supplier onboarding or switching, which ultimately increases resiliency and automation.

Real-time monitoring
To help tie all activities together and monitor events in real time, your business requires a layer of visibility – such as a dashboard, cockpit, or control tower. Such a layer enables you to track key performance indicators and drill down into detailed information without having to jump to separate systems. From this monitoring environment, you can manage alerts, run simulations, and collaborate with partners as needed.
Enabling Technologies for Intelligent Planning

Technology, particularly analytics and machine learning, allows supply chains to leverage exponentially more data, use better data analysis and visualization tools, and ultimately enable faster and more-effective planning. The rise of the Industrial Internet of Things (IIoT) technology and unstructured data, such as sentiment analysis, are generating previously unimaginable levels of supply chain Big Data.

When infused with self-learning capabilities, your sources of Big Data can help your business:

- **Sense demand:** When using machine learning, planners can detect patterns in how products are ordered and adjust their short-term forecasts accordingly. Understanding how particular products are trending can help you cater to demand and optimize production or transportation.

- **Boost gradients:** Planners can also use machine learning for multivariable analysis against a wide range of data sets to uncover useful lead indicators. From weather patterns to competitor sales, analysis of this data substantially improves demand accuracy.

- **Handle exceptions:** With thousands – or, in some cases, millions – of exceptions to face, planners can easily get overwhelmed. Machine learning algorithms can analyze these exceptions, check them for relevancy, and separate the signal from noise to prioritize the most relevant tasks.
Planning in the Experience Economy

In the experience economy, customers are connected, informed, and always-on, demanding individualized products. They also don’t call your call center to give you feedback on your products. They are, however, talking and influencing the buying decision of other customers through social media.

The customer experience holds the keys to a successful business. However, limited visibility into customer sentiment, feedback, and reviews can prevent you from predicting what to do next to deliver a compelling customer experience.

Today, supply chain processes and optimization engines are primarily based on historical operational data – with limited insights from value chain partners, actual customers, or product users.

Integrating experience data from across your ecosystem of consumers, customers, partners, and suppliers can enrich your forecasting and optimization models with critical insights that improve demand forecast accuracy and lower days in inventory.

For a better demand prediction, you should integrate both sales data and customer desires into the supply chain planning process. Such intelligence includes customer sentiment and wishes through social media, research studies, and market data. This 360-degree view of customer demand allows you to enrich quantitative-driven forecasting processes with experience data, such as consumer emotions, to drive buying behaviors that impact financial figures.
Supply chain planning solutions from SAP support holistic, synchronized planning for better decision-making that enables your business to adapt plans quickly to actual demand and supply. You can unify and transform planning – moving from sequential manual activities to streamlined, automated, and integrated processes.

In-memory computing power, machine learning, and real-time data help anticipate and optimize planning decisions based on changing conditions, customer demand, and consumer behavior. Planners can move from intervening in individual exceptions to managing overall flow, aligning supply chain goals with your business strategy, and improving performance. You can drive higher revenues and service levels with lower costs and working capital by reacting faster to disruptions.

With supply chain planning solutions from SAP, you can fully deliver on your Intelligent Enterprise aspirations. More importantly, you are positioned to stay ahead of the competition by providing the outcomes that your customers value most.

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To learn more about supply chain planning solutions from SAP, visit us online.