

Factory order orchestration for vertically integrated fashion companies



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The fashion industry's problem with supply chain transparency

The fashion ecosystem has a complex, globally distributed, multi-provider value chain that comprises raw material vendors, sourcing agents, factories, freight forwarders, and consolidators. Overlaying this value chain complexity are intricate legal and tax constructs and business characteristics such as innovation, seasonality, extended lead times, and high demand variability.

As a result, fashion companies have grappled with challenges to supply chain visibility, agility, and responsiveness. Three recent pivotal developments, however, further compounded these perennial issues. The pandemic, the shift to omni-commerce business models, and pressure to produce more sustainable business products are forcing fashion companies to re-think and re-shape their operating models.

However, these efforts are being hindered by older-generation technologies not geared toward enabling real-time visibility and actionable insights across the extended supply chain, which includes four-walls contract manufacturing.




This has created a perfect storm. At a time when the fashion industry needs technology to enable supply chain reliability, fashion companies instead resort to manual, labor-intensive efforts to track, manage, and report on manufacturing progress, which poses a major impact on operational efficiency. The inherent data latency impacts the ability to receive timely, accurate, and actionable business insights required in today's fast-paced business climate, leaving companies continually in reactive mode against demand and supply variability.

The search for solutions

Some fashion companies attempted to surmount these challenges by outsourcing contract manufacturing collaboration activities to third-party logistics providers. However, over time, they encountered persistent service-level challenges and suboptimal business decisions due to the absence of real-time visibility into contract manufacturers' data held within the third-party providers' systems and applications.

In addition to having a major impact on planning accuracy and ATP quality, this posed a major CFO pain point as it impacted work-in-progress (WIP) reporting.





Fast forward to today, where advancements in new SAP solutions and digital adjacencies enable fashion companies to overcome these challenges, achieve real operational efficiencies, and improve top- and bottom-line.

This whitepaper provides a conceptual solution and point of view on how fashion companies can harness the capabilities offered by new digital solutions that include SAP S/4HANA Fashion and SAP DMC. These solutions help fashion companies to gain real-time insight and visibility into contract manufacturing operations to unlock significant business value and benefits.

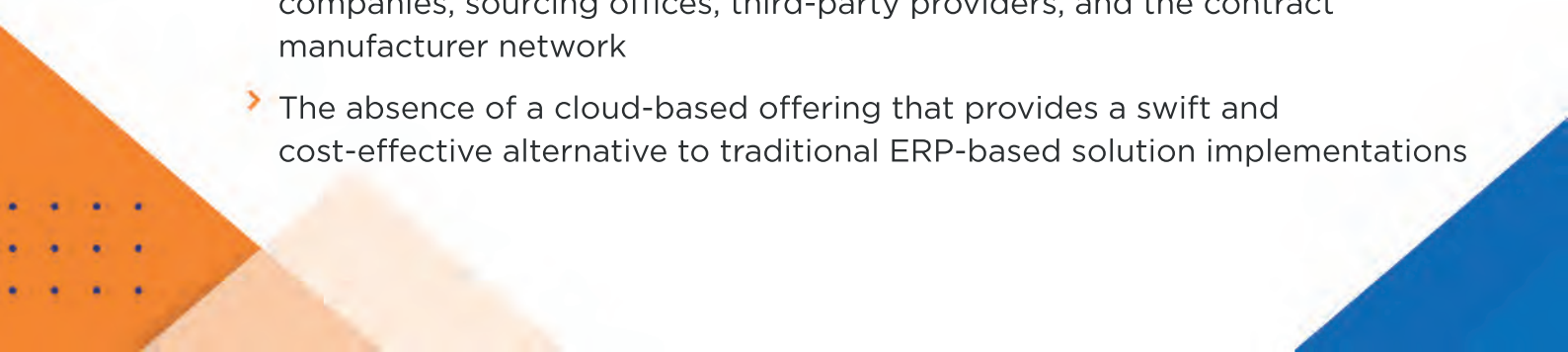
The challenge of outdated technology

Before we describe the conceptual solution, it's worth taking a step back to understand how fashion companies are organized and operate, including key challenges their sourcing offices face in terms of managing turnkey outsourced contract manufacturing operations.

A majority of vertically integrated fashion companies turnkey or outsource their manufacturing operations to third-party contract manufacturers that are generally based in the Far East. Various requesting markets place their purchase orders on factories through sourcing offices located in the same region as the contract manufacturers.

For a sourcing fee or commission, sourcing offices perform strategic sourcing activities and onboard, certify, qualify, and actively manage the relationships for a network of factories within the region. These factories manufacture one or more product categories within the companies' owned brands and businesses that comprise apparel, footwear, and accessories. Sourcing offices also place and actively manage the factory POs and build plans after consolidating demand from various requesting markets. Upon placement of factory POs, sourcing offices track and report out manufacturing progress at various stages.

The conceptual solution is orientated toward enabling fashion companies and their sourcing offices to gain significant operational efficiencies and resolve operating model and process constraints. This means overcoming the technical limitations they face today, due to:

- The pervasive use of offline spreadsheets to develop production, material, and rough-cut capacity plans across the contract manufacturing network
 - The use of traditional modes of communication (e.g., phone calls, email, print, fax, EDI) to interact and collaborate with their supply base to gain consensus on the production build plan
 - The absence of real-time sourcing and supply chain collaboration capabilities that seamlessly integrate all the key constituents - fashion companies, sourcing offices, third-party providers, and the contract manufacturer network
 - The absence of a cloud-based offering that provides a swift and cost-effective alternative to traditional ERP-based solution implementations
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- › The lack of effective means, processes, and tools to collaborate with factories and gain exception management reporting efficiencies within the following extended supply chain processes:
 - › Demand, supply, and inventory collaboration
 - › Order collaboration, orchestration, communication, and coordination
 - › Visibility into contract manufacturing progress at key milestones (e.g., cutting, stitching, lasting)
 - › Seamless orchestration of shipments bound from contract manufacturers to the various requesting markets including push-pull consolidation through overseas consolidators, the ability to carry out VAS (ticketing, labeling, packing) at factories or DC, shipment consolidation and de-consolidation decisions, etc.
 - › Order execution efficiencies that enable automation, PO changes, PO splits, and re-routes

Our concept: A visual, intuitive, and insightful contract manufacturing solution

The advent of Business 4.0 has allowed fashion companies to leverage sophisticated process and technology capabilities to resolve fundamental challenges and shifts in their operating model. Enabling technologies seamlessly bridge the gap so companies can gain actionable insight into the “black box” – four-walls contract manufacturing operations - while enabling fashion companies to improve operational efficiency and drive top and bottom-line growth.

Why the solution is based on SAP technologies

SAP has made significant investments in cloud-based digital solutions that will enable companies to solve the contract manufacturing visibility challenge and drive quick and actionable insights that will enable fashion companies to run better.

For this specific solution concept, these benefits are primarily enabled by a composite SAP digital solution architecture that can be deployed within a distributed fashion management ecosystem (Fig.1). The core capabilities are enabled through seamless integration of two such solutions:

- › **SAP S/4HANA ERP** (e.g., SAP’s S/4HANA fashion offering that enables fashion companies to run vertically integrated and harmonized operations that include wholesale, retail, and manufacturing within a single ERP).
- › **SAP Digital Manufacturing Cloud** (a cloud-based MES solution that seamlessly integrates visibility into manufacturing progress and drives actionable insights, drawing on data from contract manufacturers’ factory production systems and the fashion companies’ ERP solutions).

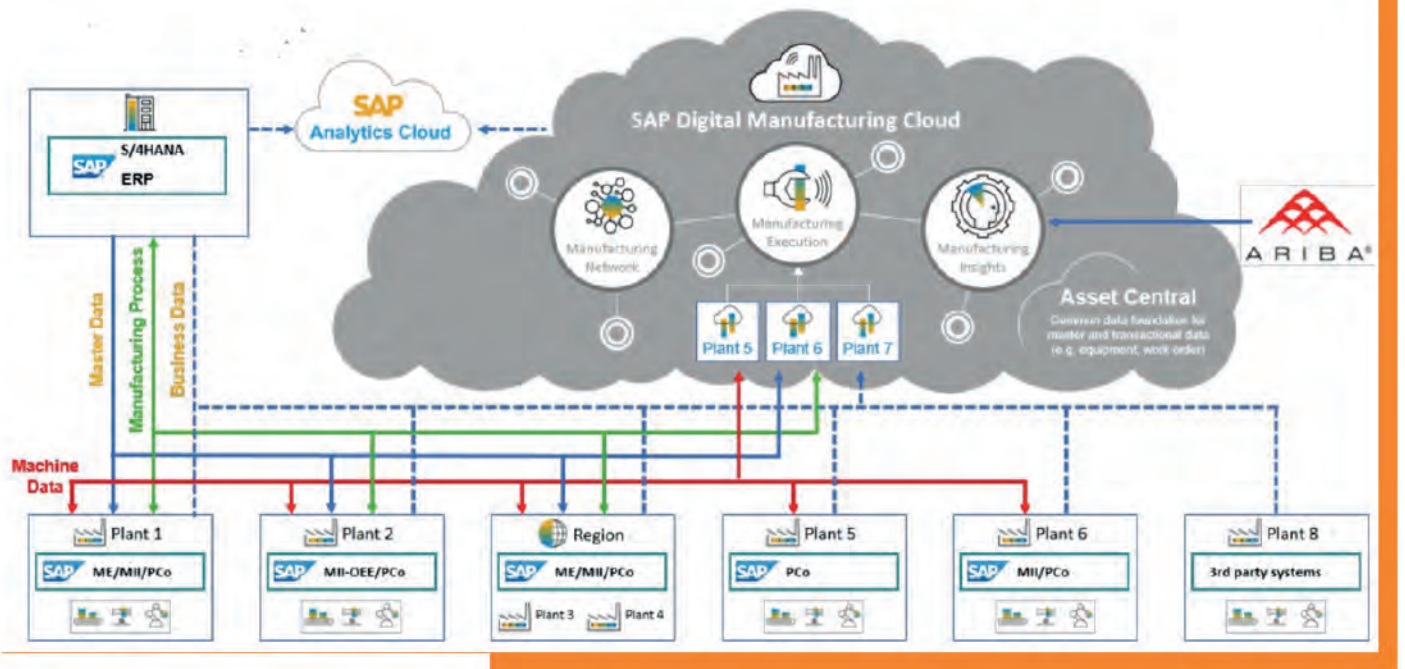


Figure 1: Distributed Fashion Management Ecosystem (adapted from SAP public document)

Let us click down into the evolution, key capabilities, and business drivers enabled by these solutions.

SAP S/4HANA ERP for Fashion and Vertical Business (FVB) – Historically, fashion companies ran their wholesale, manufacturing, and retail operations on separate ERP solutions. The absence of vertical integration and real-time actionable insights across the end-to-end value chain posed operational challenges and increased TCO, primarily due to high maintenance costs. Fashion companies that ran their business operations on the two ERP architecture grappled with the following business challenges:



Disconnected and overlapping processes between brand and retail



Siloed view of the value chain



Fragmented inventory views



No real-time visibility into inventory and demand



Limited ability to respond to changes in demand and supply

Traditional ERP

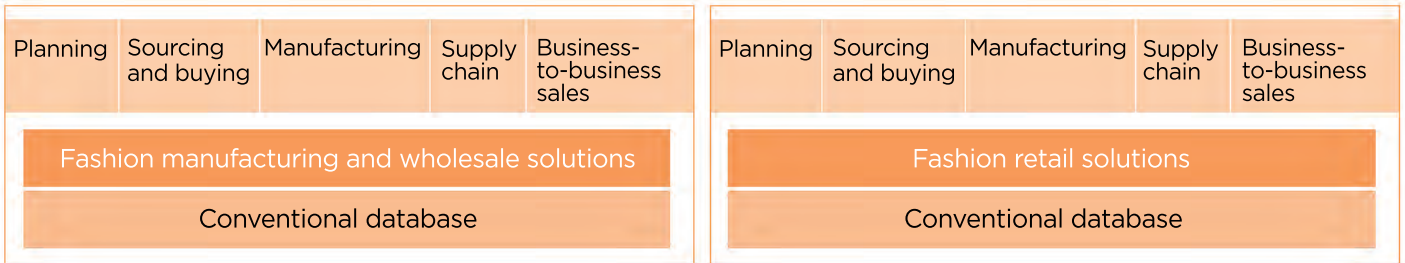


Figure 2: Limitations of a Traditional 2-ERP SAP Architecture - De-coupled Wholesale & Retail Operations (Adapted from SAP public document: [SAP S/4HANA for Fashion and Vertical Business: Retail, Wholesale and Manufacturing Under one Roof | SAP Blogs](#))

Over the last decade, SAP introduced SAP FMS Suite on HANA (Fashion Management Solution) as a preliminary step toward resolving vertical integration and process harmonization limitations and challenges, while enabling significant performance improvements due to the HANA database. As a next iteration, starting with SAP S/4HANA v1709, SAP introduced SAP S/4HANA for fashion and vertical business, a complete end-to-end solution that offers significant enhancements and competitive advantage to fashion companies by:

Enabling seamless insights to operational data



Driving business model improvements across retail, wholesale, and manufacturing



Empowering users with contextual and real-time information for faster and better decision-making

Providing flexibility and agility to drive compelling customer experiences

All of this comes with a simple and intuitive SAP Fiori interface and the speed of SAP HANA so that fashion companies can create smarter, faster fashion based on a common data set and forecast foundation; and simplify their IT landscape and business processes to unlock business innovation.



Key business benefits offered by SAP S/4HANA for fashion and vertical business include:

- › One real-time view of the value chain from manufacturer to consumer
- › End-to-end processes optimized by SAP HANA, allowing simulation of scenarios
- › Simplified database structure on SAP HANA, allowing concurrent use and process flexibility
- › Multiple industry uses, such as:
 - › Advanced ATP
 - › Stock segmentation
 - › Pack separately, ship together
 - › Flexible purchasing commitment
 - › Collection management



Figure 3: SAP S/4HANA for fashion and vertical business (Adapted from SAP public document: [SAP S/4HANA for Fashion and Vertical Business: Retail, Wholesale and Manufacturing Under one Roof | SAP Blogs](#))

SAP DMC (Digital Manufacturing Cloud) – SAP Digital Manufacturing Cloud enables companies to integrate and embed intelligence in manufacturing processes. It provides coordination of planning and execution processes, covering all aspects of the manufacturing cycle, from planning to the shop floor and beyond. It serves as a cloud-based manufacturing execution system (MES) that enables linking contract manufacturers' production operations to the ERP and the broader supply chain operations.

- SAP DMC provides global visibility connecting top floor business systems to shop floor equipment
- SAP DMC enables global visibility and monitoring of production orchestration and execution operations down to an individual work center
- SAP DMC helps execute manufacturing processes, analyze manufacturing and business data, and integrate systems in a cost-effective and resource-efficient manner

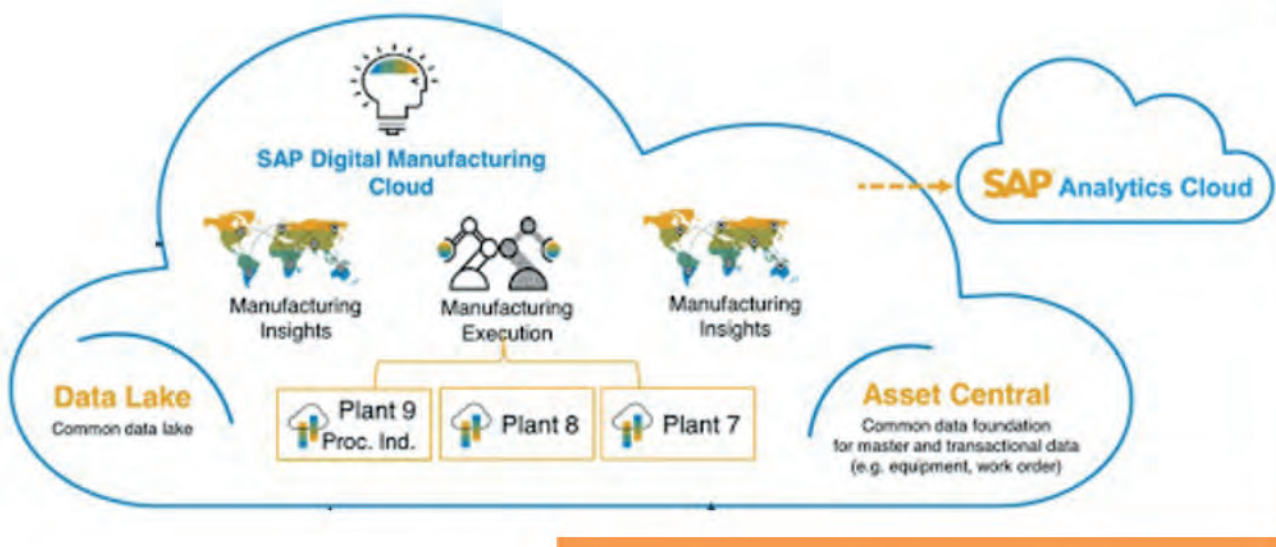


Figure 4: Overview: SAP Digital Manufacturing Cloud (Adapted from SAP public document: [Dashboard Designer, embedding SAP Analytics Cloud \(SAC\) Stories into SAP Digital Manufacturing Cloud \(DMC\) Dashboards | SAP Blogs](#))

SAP's Digital Manufacturing Cloud solution comprises two distinct capabilities that collectively enable manufacturing process execution and insights:

SAP Digital Manufacturing Cloud for execution (DMCe): Connect into the contract manufacturers' factory production systems to monitor manufacturing progress at key milestones. DMCe contains intuitive user interfaces and enables the graphical design of interlinked production processes.

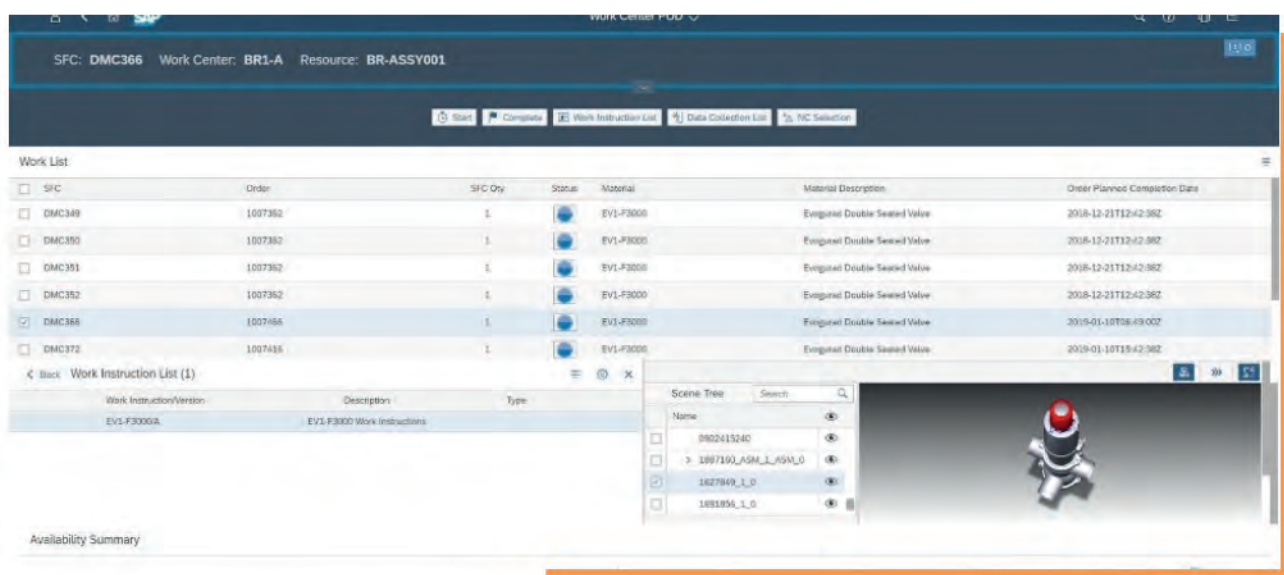


Figure 4: SAP DMCe – Resource/Work Center View (Adapted from SAP public document: [SAP Digital Manufacturing Cloud | MES, Analytics, and Operations](#))

SAP Digital Manufacturing Cloud for insights (DMCi): Enables real-time insights and visibility into contract manufacturing operations, leveraging industry-standard Key Performance Indicators (KPI) and integrating data across the S/4HANA Fashion ERP, SAP DMC, and contract manufacturer factory production systems.

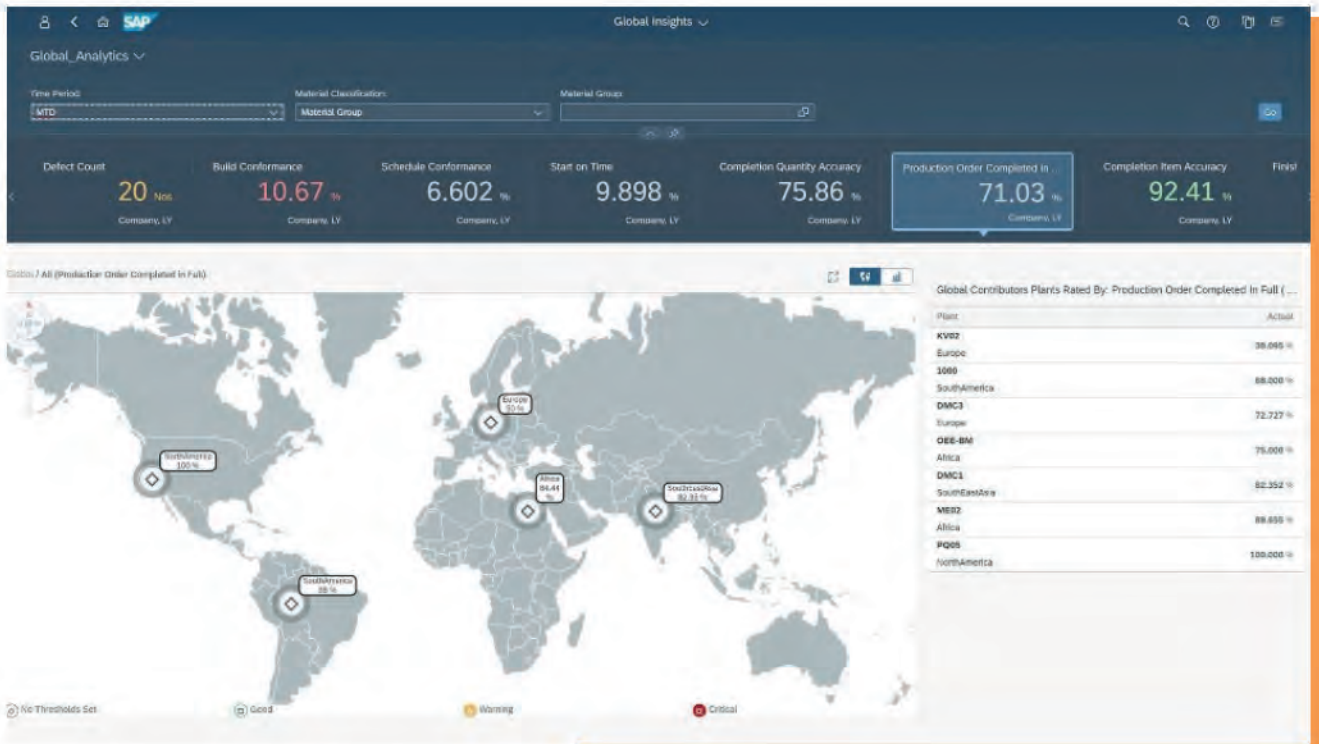


Figure 5: DMCi - Production Insights (Adapted from SAP public document: SAP Digital Manufacturing Cloud | MES, Analytics, and Operations)

Now let us illustrate the solution concept with a use case that revolves around SAP DMC and S/4HANA Fashion

Use case – Enabling insight and visibility into a shoe contract manufacturer’s operation

The conceptual solution, illustrated from the point of view of a fashion company that outsources its shoe manufacturing operations to contract manufacturers, involves several discrete milestones that reflect a series of activities performed in sequence, within the ERP (SAP S/4HANA Fashion) and the cloud-based MES (SAP DMC), and the way the information is synchronized near-real-time between the two solutions:



Figure 7: Conceptual Solution Architecture - Factory PO collaboration

> Activities performed within the ERP (SAP S/4HANA Fashion):

- » Consolidation of market demand by overseas offices
- » Creation of bulk order (sales contract)
- » Creation of a sales order/call-off against the sales contract
- » Creation of a purchase requisition at sales order save
- » Assignment of source of supply (approved goods supplier and factory)
- » Conversion of the purchase requisition to purchase order and placement on the factory
- » Update the purchase order – Milestone 0: Purchase order acknowledged
- » Update the purchase order – Milestone 1: Raw materials procured (leather from tanneries)
- » Update the purchase order – Milestone 2: Cutting complete
- » Update the purchase order – Milestone 3: Stitching complete
- » Update the purchase order – Milestone 4: Lasting complete
- » Update the purchase order – Milestone 5: Product shipped & ASN transmitted

> Activities performed within SAP DMC:

- » DMCe: Manufacturing progress at Milestones 1 to 4
- » DMCi: Insight-to-action: Enable real-time visibility through synchronized updates to factory POs placed within the companies' own S/4HANA Fashion ERP system for the purpose of reporting & analytics

Note:

1. Milestone 0: Purchase Order Acknowledged and Milestone 5: ASN are generally managed through EDI or portal capabilities (e.g., Ariba Network) and automated updates to the ERP purchase orders.
2. Milestones 0 to 5: Are typically enabled through purchase order confirmation categories configured within the ERP and establishing the relevance of each confirmation category to planning (netting) and reporting (statistical only).
3. For brevity, the conceptual solution architecture does not explicitly call out steps necessary to integrate and synchronize the required master and transaction data across the subscribing systems that include SAP DMC, Factory Production Systems, and the ERP. Examples of such data include materials, production bills of material, routings, work centers, and production orders.

Conclusion

Fashion companies are undergoing a major transformation, due to the changes in consumer preferences and shopping habits. These are the emergence of fast fashion, the emphasis on sustainable manufacturing practices, an exponential increase in B2B/B2C and eCommerce investments versus traditional brick-and-mortar business, and socioeconomic factors that drive risk and uncertainty around their distributed manufacturing base.

As they invest in digital, best-of-breed capabilities to enable this transformation, they have a real opportunity to address some of the core-foundational operating model challenges that have persisted over several decades, primarily centered around order orchestration, collaboration, and insights/visibility.

A laser focus around investments targeted at supply chain improvements and network collaboration capabilities, in conjunction with a digital manufacturing cloud solution, third party surface insights, and synchronous updation of the ERP would significantly improve and enhance user experience, drive quick and actionable business insights, and pave potential pathways to scalability and growth.

Reference List

- SAP S/4HANA for Fashion and Vertical Business: Retail, Wholesale and Manufacturing Under one Roof | SAP Blogs
- SAP Help Portal: Application Help for Digital Manufacturing Cloud
- SAP Digital Manufacturing Cloud | MES, Analytics, and Operations
- Intelligent ERP -The New Foundation of an Intelligent Fashion Enterprise Business Value of SAP S_4HANA

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Rajiv is a Senior Solutions Director at HCL with 23 years of experience leading SAP transformations from strategy through sustainment phases. His Big 4 and boutique consultancy experience spans SAP-enabled IT strategy, advisory, implementation, solution architecture, and innovation - focused on Retail, CPG, and Hi-Tech sectors. He has a track record of architecting innovative SAP solutions that drive standardization, efficiency, enable differentiation and business value. Rajiv credits his heritage as a former third-generation industrialist for enabling him to harness and orchestrate multiple dimensions - industry, business, process, and technology - to drive tangible business outcomes. Rajiv has a bachelor's degree in Electrical and Electronics Engineering and a Post Graduate Diploma in ERP from premier institutes in India.



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