

CONTRACT MANUFACTURING: OVERVIEW AND APPROACH WITH ORACLE SCM CLOUD

Abstract

Business processes as well as supply chain processes for manufacturers are complicated and often siloed. In a market where contract manufacturing is a key factor in meeting production deadlines, it requires close coordination to ensure that supply chain processes are optimized to achieve the stated business goals. For this, one must trace the path of planning and execution right from demand generation and consolidation using information like sales history with a clear focus on revenue and margin targets.

This paper highlights how manufacturers can leverage Infosys solutions for Oracle Supply Chain Management Cloud, part of Infosys Cobalt, to meet these complex requirements with legacy systems. It also looks at an approach to measure supply chain KPIs and the different types of integrations needed with the contract manufacturing system.

Introduction: Process Overview

To understand why original equipment manufacturers (OEMs) need a strategic approach to planning and execution for contract manufacturing, one must first examine these two processes in detail:

Planning – The area of planning within manufacturing comprises several aspects. For instance, supply planning encompasses material scheduling for manufacturing and contract manufacture scheduling. Logistics planning comprises steps like bulk load planning (for overseas carriers), shipment

to distribution centers, and delivery to the customer.

Execution – For execution, the parent company conducts demand planning, aggregates demand, and shares this with contract manufacturers. Contract manufacturers then confirm whether they can fulfill this demand as per their capacity. The parent company will then schedule the material to produce the finished product within the agreed timeline. The contract manufacturer will also look at the logistics plan shared by the parent company

to ship the product to the parent company's distribution center or directly to the end customer (as per the need) using a third-party logistics provider (3PL).

Thus, holistic planning starts right from forecasting the demand and includes transportation as well as logistics planning. For effective and smooth execution, there is need for seamless integration of data between systems and unobstructed information exchange between the parent organization, contract manufacturer, suppliers and material scheduling.

Processes for Contract Manufacturing

Broadly, there are four steps in a contract manufacturing scenario: Demand planning, production planning, material planning, and procurement process at the OEM. The supply and demand plans are shared with

the contract manufacturer and then the focus shifts to the contract manufacturer.

The contract manufacturer plans its demand-supply cycle using its own system and receives material from OEM's supplier.

It completes manufacturing and ships the product to the OEM or distributor. The exchange of information and material among these trading partners is illustrated in Figure 1.

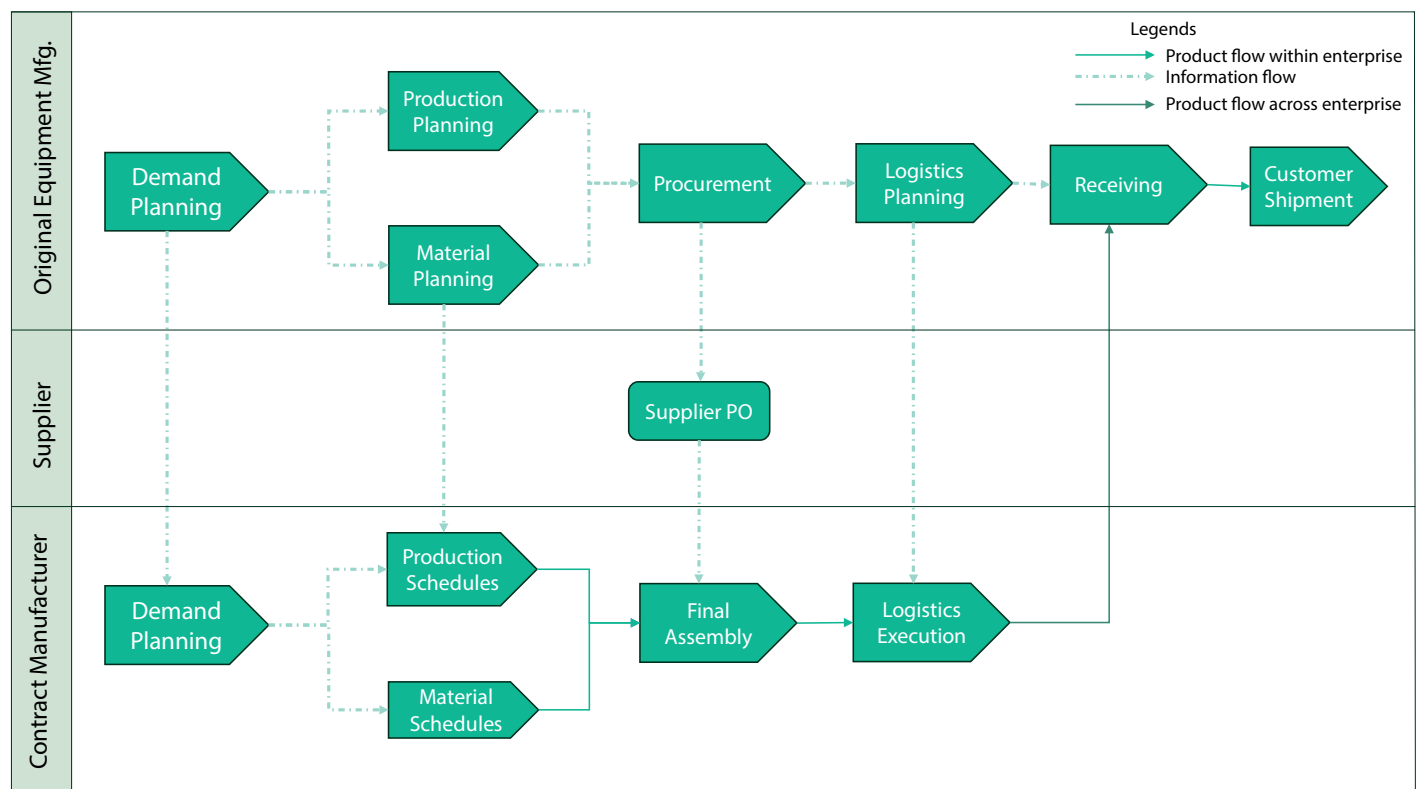


Figure 1: High-level process flow of contract manufacturing

A Real-world Example

Let us take a deeper and more detailed look at the process taking the example of an electrical and electronics products manufacturer. This real-world problem provides a view of the complexities involved with systems, communications, processes, and people. It also helps define the process and illustrate the dependencies among the trading partners.

Problem Description

The key challenges faced by the electronics manufacturer were related to the supply chain planning between the OEM and the contract manufacturer. Armed with limited information, they were unable to effectively predict demand-and-supply scenarios, thereby limiting their ability to orchestrate effective supply planning.

The top five questions faced by the OEM were:

1. How can we translate the contractual obligations to the contract manufacturer into a feasible sales and operations plan?
2. How can we validate the sales forecast against the inflow of customer orders?
3. How can we manage our backlog of orders and reprioritize these based on customer requests?
4. How can we plan to avoid excess inventory across the supply chain and improve inventory turn?
5. What are ways in which the freight and storage costs can be optimized?

Solution Details

The successful approach involves addressing the problem using an 'inward-to-outward' focus on the supply chain. This entails examining the interactions from the OEM to the contract manufacturers and 3PL. Such an approach breaks down supply chain transformation from a systems perspective. It tracks interactions between the OEM with its various partners like customers, contract manufacturers, freight forwarders, and 3PL providers to improve fill rates and reduce cost. The approach also reveals opportunities for automation and adopting best practices to smoothen workflows and enable agile data exchange.

In this approach, the material and information process flow from the OEM are charted outwards. As seen in Figure 2, different channels of interactions are mapped to highlight the key entities in the supply chain.

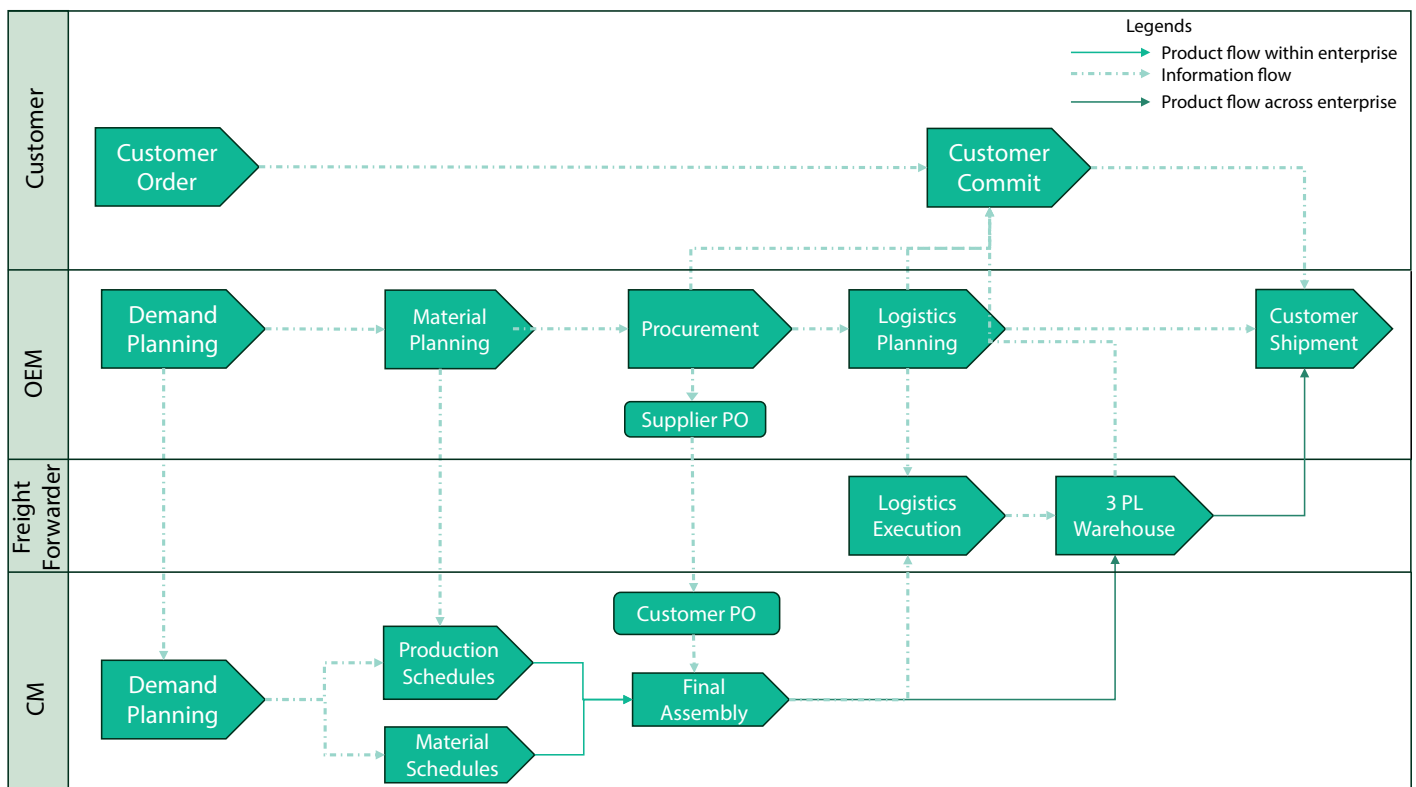


Figure 2 – Inward to outward approach

Once the different entities are analyzed and exposed, there is need for a systemic approach to re-engineer processes carried out by partners and redefine how these processes and stakeholders interact. This simplifies some of the processes and gives the manufacturer a process-based interaction plan. It also leverages certain best practices across supply chain scenarios.

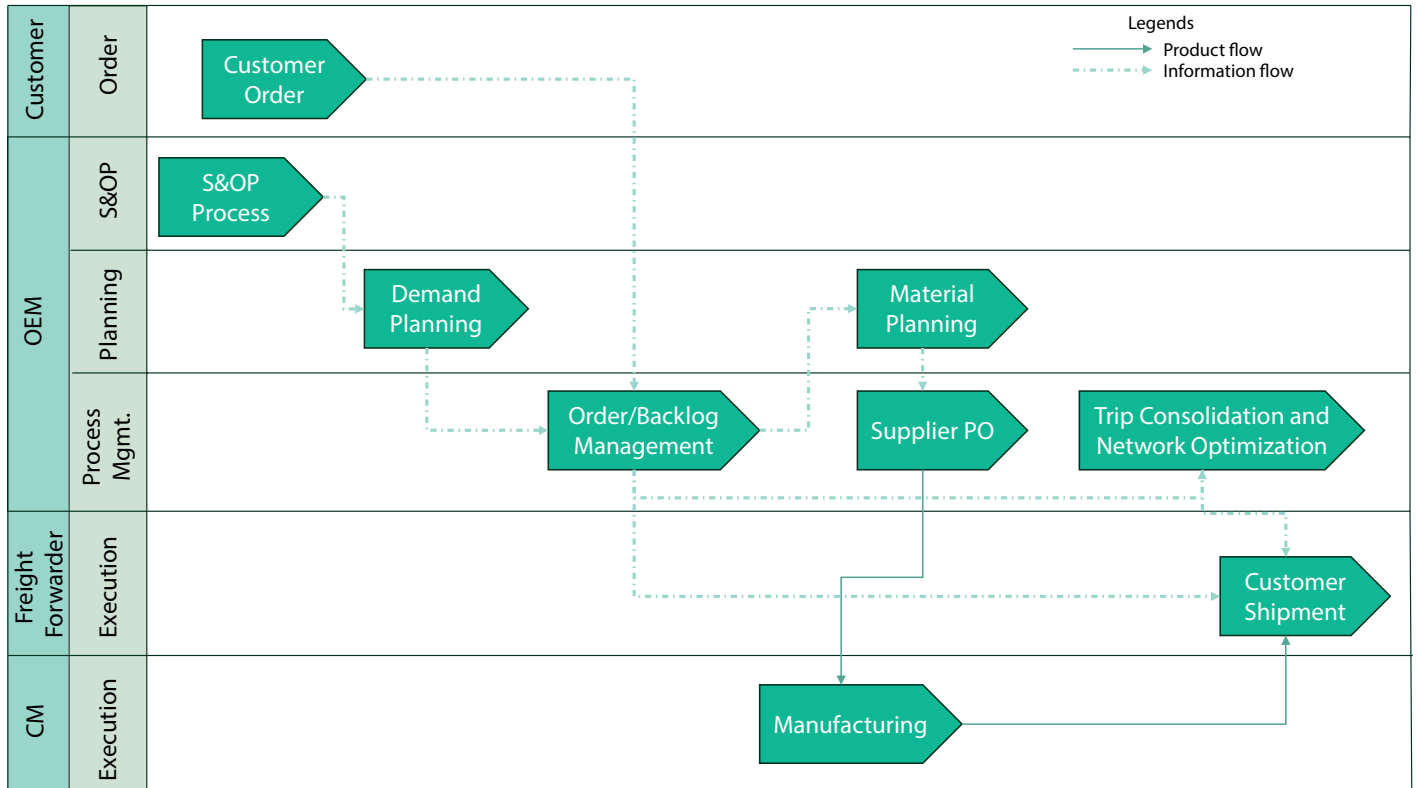


Figure 3 – Process-based interaction and best practices in the new supply chain

Sales and Demand Planning

Redefining the process flow can enhance sales and operations planning (S&OP), as well as demand planning in the following ways:

1. Sales and Operations Planning

The parent company, which is either an OEM or an original design manufacturer (ODM) shares an aggregate plan with the contract manufacturer during the S&OP process. The OEM/ODM simulates demand based on various market scenarios and performs what-if analysis to assess revenues and margins. During the what-if analysis, a consensus is reached between

various business functions involved in demand and supply planning along with a financial review. The final S&OP plan is discussed and shared with the executives involved. S&OP follows an iterative process until the all the executives from supply chain and finance departments agree on the business plan.

2. Demand Planning

The consensus forecast is the final output. This is baselined as 'planned demand'. But planned demand also depends on different demand streams across business functions as well as sales forecasts, customer forecasts, and statistical

forecasts. The sales forecast stream needs a human touch based on political factors as well as consumer trends. The customer forecast stream is based on customer feedback through surveys and interviews. The statistical forecast uses a forecasting algorithm and machine learning tools that ingest historical sales and shipment data. All of these streams play a vital role in deriving the final demand forecast and are weighted according to their degree of importance. During the execution, the consensus forecast is tweaked and corrected based on customer orders, forecast accuracy, and fill rates. Post these adjustments, the final demand forecast is approved.

Using Oracle Supply Chain Management Cloud (SCM) to Enhance Contract Manufacturing

The approach of disassembling the supply chain systems and processes based on 'inward' and 'outward' focus can simplify how OEMs partner with contract manufacturers. Oracle Supply Chain Management (SCM) Cloud has key modules that support this approach, as described below:

Outward Focus

Evaluating supply chain KPIs across contract manufacturer, freight forwarder, and 3PL

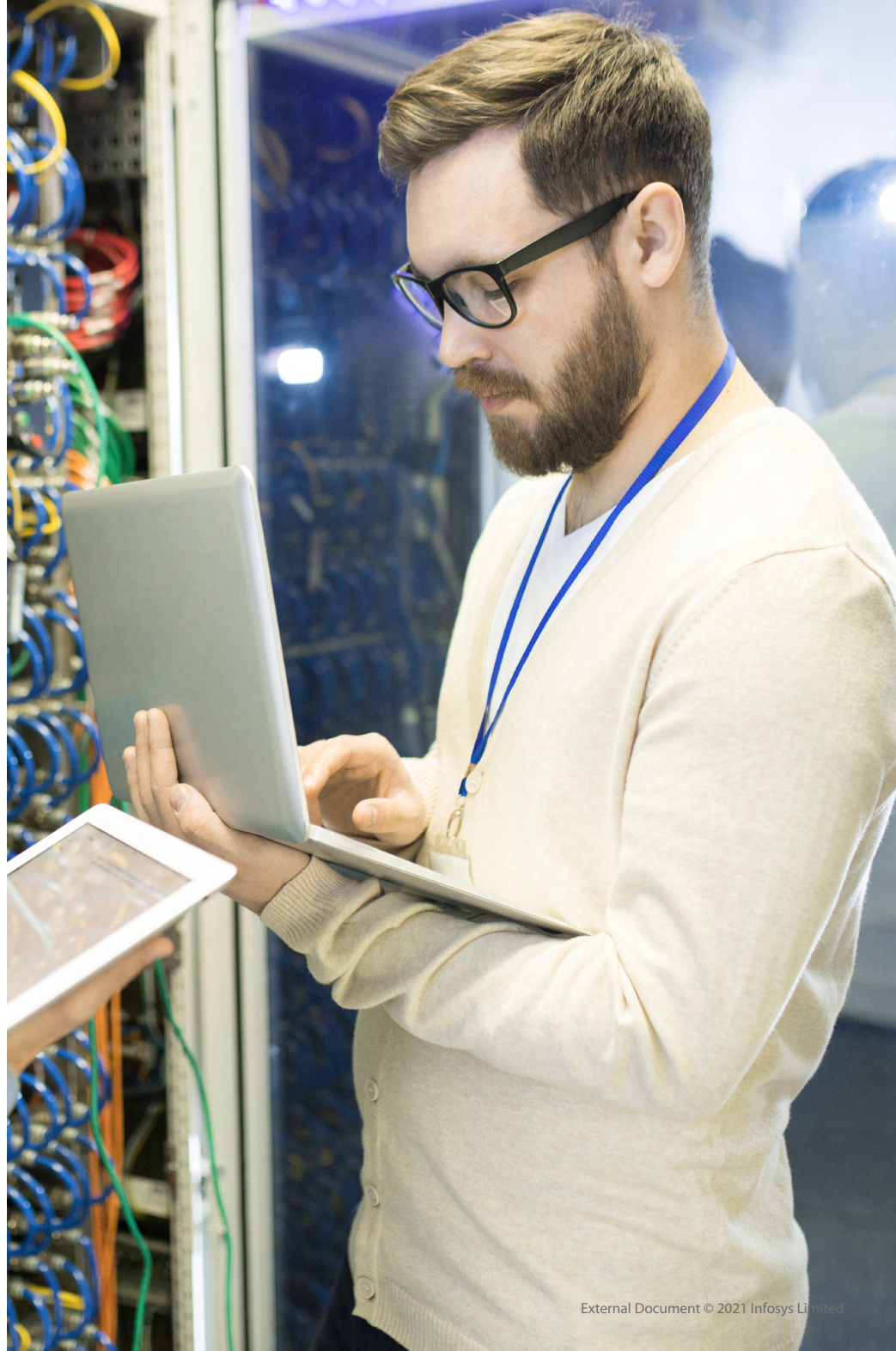
Backlog Management

The contract manufacturer blocks capacity against the consensus or approved demand forecast during the S&OP process in collaboration with the OEM/ODM. Based on the contractual obligations, the contract manufacturer commits to a shorter planning horizon of nearly three to four months of supply against the confirmed purchase orders from parent company. Incoming customer orders are scheduled based on two factors, i.e., the promised dates in the confirmed purchase orders and the lead time. In case supplies are not available, customer orders are re-prioritized and the supplies are re-organized to maximize revenue and gross margins. The parent company (OEM/ODM) also responds to the customer preferred prioritization without committing or changing the customer order dates for what-if analysis and to improve customer experience.

Oracle Transportation Management (OTM) and Oracle Global Trade Management (GTM)

Supply chain execution involves the outward movement of products from the contract manufacturer to the third-party warehouse in collaboration with logistics partners. Oracle Transportation Management (OTM) cloud provides visibility and tracking of shipments.

This improves resource utilization by consolidating trips and using predefined transit times to avoid ad-hoc planning and execution. OTM dashboards help view the shipment schedule, dispatch status, execution status, and tracking events. Oracle GTM helps screen and validate all customer orders for restricted party/sanction territory during the shipment process as part of trade compliance.



Inward Focus

Evaluating supply chain KPIs across the OEM

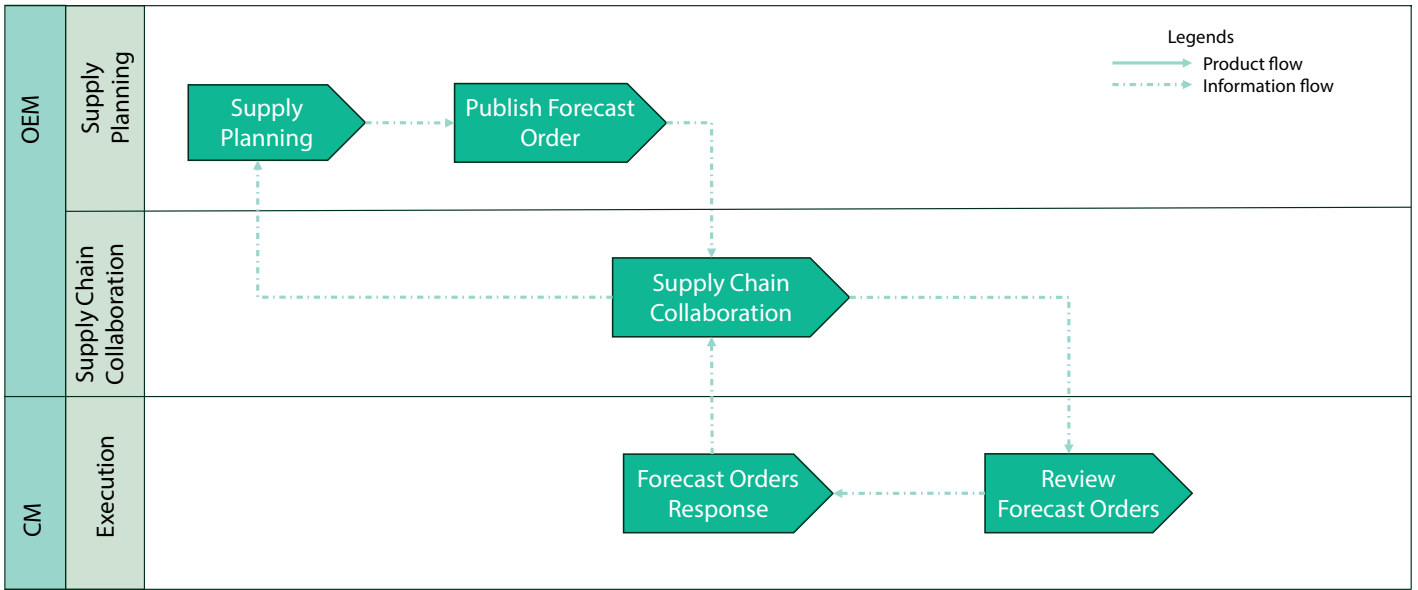


Figure 4 – Mapping the inward focus for contract manufacturers

Supply Planning Process

As part of the supply planning process, the parent company or OEM/ODM maps the contract manufacturer's facility, capability, and production lines to supplier capacity using the resource modelling technique in Oracle SCM Cloud. Purchase orders and supplies are confirmed against the demand forecast, which is created during the supply planning process. Supplier collaboration helps capture and reflect the contract manufacturer's supply scenario as a forecast response and purchase order response.

Supplier Collaboration Process

The supply plan output provides planners with forecast orders that can be published to the contract manufacturer. After this, the contact manufacturer can review the received forecast order. Post their review and supply chain analysis looking at production line capacity and material availability, the forecast commit is sent to the parent company (OEM/ODM), which is then updated as supplier

capacity in the subsequent supply plan. Oracle SCM Cloud planning analytics and dashboard are configured to support the 'manage-by-exception' business process.

Exceptions are further analyzed using drilldown features such as tables and views to access the execution document and respond appropriately.



Conclusion

Oracle SCM cloud brings out the best possible collaboration, interactions, automation, and adoption of best practices to smoothen business processes between OEMs, contract manufacturers, and 3PLs. It enables organizations to eliminate functional silos, harmonize business processes and functions, and drive consensus in an agile manner in order to meet overall business objectives.



About the Author



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Chandra is a principal consultant with Infosys. He has 20 years of IT experience in consulting, project management and pre-sales in the Manufacturing, Hi-Tech, Healthcare and Distribution industries. As a technology transformation leader with Oracle Cloud and Oracle E-business suite, he has helped the clients in their digital journey across multiple client locations in India, Japan, UK and US with Infosys. Chandra is the solution architect with Oracle practice, Infosys and has worked on multiple proposals and contributed to the Industry solution with Oracle ERP Cloud.

Infosys Cobalt is a set of services, solutions and platforms for enterprises to accelerate their cloud journey. It offers over 14,000 cloud assets, over 200 industry cloud solution blueprints and a thriving community of cloud business and technology practitioners to drive increased business value. With Infosys Cobalt, regulatory and security compliance, along with technical and financial governance comes baked into every solution delivered.

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