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Supply Chain Excellence in the Pharmaceutical Industry: Novartis – A Case Study
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Supply Chain Excellence in the Pharmaceutical Industry: Novartis – A Case Study

by

Gourav Narayan Mukherjee

The thesis is intended to contribute fundamentally to the research effort of the Supply Chain 2020 project (SC 2020). The SC2020 research initiative is structured toward providing insight into major research questions about the future of supply chain excellence. The SC 2020 project will attempt to accurately and concisely describe the structure and nature of how supply chains will have probably evolved by the year 2020. In order to examine the nature of a specific industry within the scope of the SC 2020 project, the author chose to examine pharmaceutical supply chains. To further identify critical success factors, the author chose to examine Novartis AG, a Switzerland based top-10 pharmaceutical company. The following content will provide valuable insight into the current structure of pharmaceutical supply chains including the key components that make certain supply chains "excellent."

The pharmaceutical industry generally includes companies who focus on the research, development, production, and sale of drug substances and compounds for medical use. These companies require industry specific supply chain practices geared toward compensating for the myriad of idiosyncrasies in the industry including unusually high markups, elevated R&D costs, increased governmental regulation, and substantial lead and cycle times. A number of trends are contributing to variations within the industry and are compounding the complexity of these pharmaceutical supply chains. Some current industry trends include: decreasing R&D efficiency; increasing regulatory and pricing pressures; increasing generic competition; shifting production methods from chemical to biopharmaceutical or genetic processes. Current regulatory policy in the US is conducive to generic producers and offers exclusivity periods for newcomers in the market. Increasing pricing pressures amongst a consolidated supplier base and SKU proliferation are creating a need for leaner and more efficient supply chain processes. The industry is also experiencing more frequent stock outs in spite of record high inventories; this complexity is compounded by products with cycle times that often exceed 12 months and lead times in excess of 10 years.

Novartis is a geographically diverse company that was created through a history of mergers and acquisitions. The company has product offerings in consumer health, over-the-counter (OTC), generic, and prescription pharmaceutical products. Within the

pharmaceutical products division, the company focuses its R&D efforts around key therapeutic categories surrounding the treatment of chronic illnesses. Amongst its therapeutic categories, Novartis considers itself a market leader in transplantation products. Novartis maintains a robust pipeline of drug compounds in development; these compounds determine the future success of Novartis. In addition to successful R&D, Novartis owes its success to a sound strategy with a complimentary operating model, sound objectives with appropriate metrics, and aligned practices and processes.

Strategy

The pharmaceutical division focuses its core business strategy around adding new profitable and patent protected products to its broad portfolio of treatments for chronic illnesses; Novartis utilizes a broad product portfolio, including generic products, to reduce reliance on blockbuster drugs and maintain market share after patent expirations. Generics products also allow Novartis to capture market share for competitors' off-patent products. Novartis chooses to focus R&D efforts primarily on chronic illness products since these products are administered on a perpetual basis and are not subject to material variations in demand. Novartis also strives for global market reach and operates in over 140 countries worldwide. It maintains a broad and geographically diverse asset base that allows Novartis to serve extremely diverse markets and promote business continuity.

Operating Model

Novartis chooses an operating model that supports its strategy of creating a diversified product portfolio by vertically integrating its supply chain. Vertical integration allows Novartis to retain more profits and increase control over production. The added control offers Novartis the ability to optimize tax benefits by manufacturing products in low tax regions. Novartis also is able to increase asset utilization through resource sharing. Unfortunately, vertical integration also increases complexity. The increased complexity is managed through a focused brand pipeline management structure where each key product is evaluated separately in the production process. The company operates production and sales facilities across a very broad geographical base. This broad base allows Novartis to employ customized sales practices and meet regulatory and language in each country that it services. Novartis also receives financial benefits from the broad array of facility locations. Taxation structures vary between countries and regions; Novartis is able to produce products in the regions which allow the company to retain the highest amount of profit. The Novartis operating model is designed to support the high degree of complexity that occurs with a broad portfolio and vertical integration. The company maintains a globally and centrally managed approach to certain

aspects of its supply chain. Throughout the production process, key products which are managed at a brand pipeline level remain visible to global management, while local facility decisions are managed locally. Novartis employs a matrix organization that allows both functional and process efficiency.

The Novartis Supply Chain Management (SCM) group places a focused emphasis on operational objectives to support the operating model. The company tries to reduce both the cycle and lead times for the production. Novartis is pursuing an initiative entitled "Launch in 1000 days" which is designed to limit the time it takes to bring a new product to market. In the past, it often took over 5 years to bring new product launches to market. One of the key goals in place for the SCM group is centered on maximizing production capacity and asset utilization. The centralized operating model allows Novartis to efficiently allocate capacity amongst product production campaigns. The brand pipeline management approach achieves superior information flows which lead to better physical flows of products. This approach also allows Novartis to maintain end-to-end visibility of products. The global SCM group tries to achieve better traceability and control over material flows and asset utilization. Novartis SCM also tries to achieve global inventory reduction throughout the supply chain by utilizing benchmarking techniques to monitor overall inventory levels on both an aggregate and brand pipeline level.

Operational Objectives

In an effort to facilitate shorter lead and cycle times, Novartis employs a parallel approach to the development and production of new products. While products are still in clinical development, Novartis removes boundaries and separation between their clinical and production supply chains. This allows better sharing of knowledge and information during the development process. Key aspects of the clinical production process are shared with production engineers. The early knowledge transfer allows Novartis to begin the certification process for their production techniques in sync with the product's regulatory approval.

Complimentary Processes

Turntable

Novartis utilizes a supply chain turntable to exercise control over production and to better manage the high degree of complexity resulting from a broad product portfolio, vertical integration, and broad geographical asset base. The turntable is located in Basel Switzerland, and often manages over 10,000 simultaneous open orders with over 50,000 order lines per year (Novartis Interview 2005). Even with over 20,000 inter-company

shipments annually, Novartis spends less than $20 million annually on transportation. The turntable allows Novartis to centrally manage their vertically integrated supply chain and improve visibility and tracking of products and materials through the production process. Additionally, in support of the company's tax optimization strategy, the turntable serves as a financial hub for all inter-company transactions.

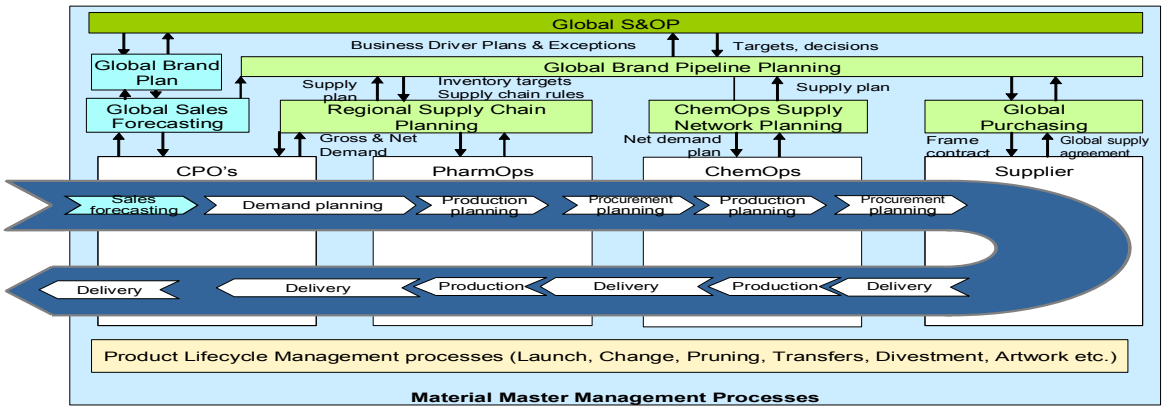

Figure 1: Operating Model (Novartis Global Supply Chain Management Presentation - *Induction program to newcomers in the organisation* 2005)

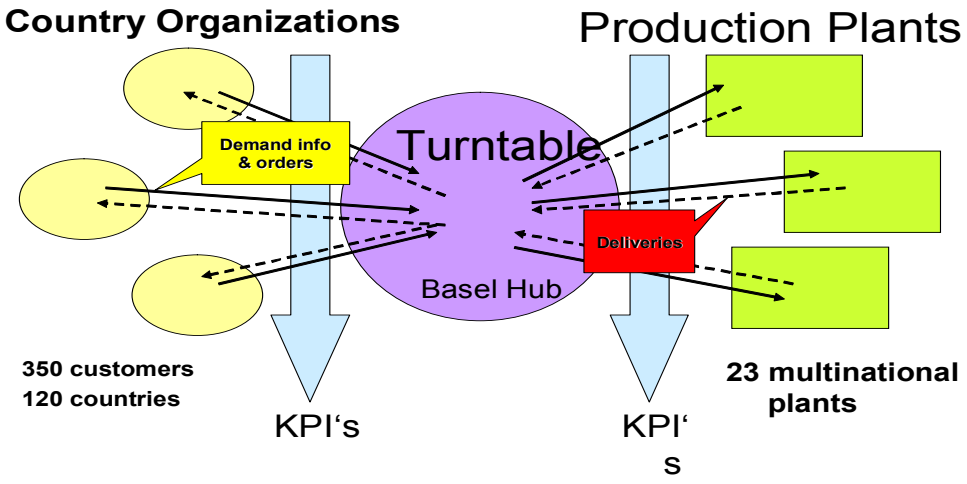

Figure 2: Turntable and KPI Illustration (Novartis Global Supply Chain Management Presentation – *Turntable Operations Basel* 2005)

Collaborative Forecasting

Novartis employs a level determined collaborative process for sales forecasting. Each country or region specific sales organization develops its own sales forecast which is then passed up to the global sales and planning group. The supply chain planning process begins with a sales forecast. The forecasts will include information about the expected volume of sales as well as the projected financial impact of those sales. The sales staff must also produce accurate accounting of their assumptions about the forecast

including explanations as to how and why each value was determined. The forecasting team must take into consideration each particular Brand Strategy, Historical Sales information, Market Intelligence, and other pertinent inputs to the forecasting process. Through better sharing of assumptions in the sales forecasting process, Novartis is able to achieve lower safety stock and inventory through the supply chain.

Scheduling and Planning

To achieve high levels of asset utilization Novartis uses well founded planning and scheduling methods. Their broad product portfolio combined with a need for asset sharing requires more frequent setups and changeovers of production equipment. This added complexity requires Novartis to undergo a robust and formalized scheduling and planning process. The production planning process must be composed of both centralized and distributed decision making activities simultaneously. The brand pipeline management approach helps facilitate this process and reduce overlap in planning efforts. Novartis also utilizes their accurate sales forecasts to assist in producing better facility production plans. Novartis tries to operate approximately two production campaigns per product per year in order to keep changeovers and setup costs to a minimum. Improper planning could result in lowered efficiency throughout the supply chain.

Conclusion

Overall, Novartis employs a focused business strategy which forgoes opportunities in certain markets in order to focus on its core competency of producing profitable, chronic illness products. The operating model supports this strategy through centralized management of production and complexity. Novartis focuses on improving operational efficiency through the use of customized processes and KPIs. Novartis also employs supporting processes which increase accuracy and profitability throughout the supply chain. This supporting hierarchical supply chain structure certainly exhibits the traits of an excellent supply chain.