Information Management in Demand Chain Management - A Global Enterprise View

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Abstract

Information Management has a critical role as an enabler and contributor to successful business strategy implementation. At Nokia Mobile Phones this has been highlighted especially in the context of Global Demand Chain Management. In this paper basic principles and differences of Supply Chain Management and Demand Chain Management are explained. The role of Information Management and Technology in Demand Chain Management is discussed. Finally, key drivers and criteria for Information Management system design are outlined.

1 Introduction

Current Information Management (IM) systems in many companies have been developed following the needs arising from administration, control, reporting and transaction management. The systems are often a result of evolution and serving of discrete needs of different parts of the organization rather than a result of a holistic plan and implementation derived from the strategy and the business needs of the company. In many cases, the solutions have been built following the needs of functional line organizations rather than key business processes and thus, at worse, information management solutions further reinforce the walls and gaps between the different functional islands within a business process.

Information technology capital spending per white collar worker has tripled since 1980 and overall IT spending is projected to increase by 60% per year.¹ Still too few companies are getting true business benefits from these investments in form of improved customer satisfaction, increased market share and improved profitability.

Creation of IM strategy and investment decisions need to be guided by business strategy and needs. Companies need to analyze on which areas they are spending their IM budget: is most of the money spent on administrative areas or are the investments focused so that they support and enable key business processes and strategic imperatives of the company?

¹ The McKinsey Quarterly, 1996 number 3

2 The Strategic Role of Information Management in Supply Chain Management

Supply Chain Management is, to large extent, about the management of information flows. Information Technology has had a key role in the transformation of the logistics function at leading-edge companies. Unfortunately, lack of sophistication in information systems is still one of the biggest roadblocks to supply chain integration today. The 'single solution' pipeline management system is still a dream for most companies who have to manage combinations of technologies and transactional systems that manage order processing, inventories, shop floor production, materials and other discrete business functions.

Information Management focus must be shifted from general management and control to a development of the means and solutions to enable integration of cross functional teams, key business processes, performance management, information and knowledge - all this with a market and customer driven focus targeting to increased profitable market share. Thus, the strategic questions and drivers for Information Management in Supply Chain Management are:

- How to improve customer satisfaction through
 - product availability
 - delivery accuracy
 - responsiveness and flexibility
 - value-adding services offering
 - learning and improvement through effective feedback
- How to increase profitable sales revenue
- How to improve efficiency of operations through eliminating unnecessary activities, reducing inventory and improving utilization of assets.
- How to improve and support the understanding of logical links and causalities in the Supply Chain
- How to manage performance in real time, process based mode instead of traditional functional performance management
- How to improve relevance, quality, timeliness and visibility of information

It is of elementary importance that transparency and visibility to market and customer driven needs is achieved and that most effective and efficient way to respond to these needs is created through information management and supply chain structure (speed and flexibility) rather than through spending more to assets.

Effectiveness and efficiency of any supply chain is dependent upon the visibility that can be gained from materials flows, inventories, and demand throughout the pipeline. As Christopher states, without the ability to see down the pipeline into end-user markets, to read actual demand and subsequently to manage replenishment in virtual real time, the system is doomed to depend upon inventory². Time lapses in information flows are directly translated into inventory.

By utilizing enabling information technologies a lot of the complexity of Supply Chain Management can also be eliminated. Today we see a lot of people spending a lot of time creating, communicating and executing inaccurate forecasts and constantly

² Christopher, 1992, p.122

changing plans leading to self-induced turbulence in the chain. By utilizing advanced, integrated information systems we can create more accurate forecasting and planning systems and communicate the plans as well as their exceptions more effectively up and down the supply chain. The aim is to achieve speed and simplicity by eliminating unnecessary activities and tasks.

The logistics information systems must incorporate several principles to meet Supply Chain Management needs and adequately support operations. In order to keep the focus of the whole supply chain on to the customer, an integrative framework for the whole information system is needed. The idea of *Demand Chain Management* is based on the principle of using demand instead of supply as the factor integrating the information needs in the supply chain.³

3 Demand Chain Management as a Driver for Information Technology and Management Strategy

Traditionally, the key focus and scope in Supply Chain Management has been in managing the flow of materials and goods from suppliers through manufacturing and distribution chain to the customer. Important considerations are materials requirements planning, capacity management, production planning and scheduling, inventory levels and supply allocation. In many cases the information flow from customer to the chain including suppliers is narrow. This information is often presented in form of periodical forecasts and internal (often bundled) stock orders - the entire chain too rarely is driven by and has the visibility to true market demand information and customer orders in real time. This traditional view of Supply Chain Management is illustrated in Figure 1.

Figure 1: Scope of Supply Chain Management

In Demand Chain Management the key focus is *the continuous flow of the demand information* from customers and end users through distribution and manufacturing to suppliers. The shared objective of the chain is fulfilling customer demand. The most important controlling inputs are rolling forecasts and plans, point-of-sales data, daily orders, management decisions and performance feedback. The controlling trigger of the chain is the customer order (or replenishment signal) and the order penetration point is varying dependent on what is the optimum way to provide required level of service in a most efficient way.

³ Vollman, 1996

The focus in Demand Chain Management is in information management. The information flow can be described as “thick”, timely, meaningful and transparent. The material flow from the suppliers through manufacturing to customers is thin and as much as possible controlled by daily consumption in order to guarantee the availability of goods in demand and at the same time minimize the inventories. This view of Demand Chain Management is illustrated in Figure 2.

Figure 2: Scope of Demand Chain Management

The main difference between Supply and Demand Chain Management is the focus and starting point of planning and controlling: in Supply Chain Management it is the material supply push, in Demand Chain Management it is the end user demand pull. Real pull control can only be achieved by using timely end-user demand information as a pull trigger from end users to suppliers as a primary planning and execution source. This is the way to integrate supply chain in an effective and efficient manner.

The role of Information Management and Technology is to be a key enabler for Demand Chain Management. It means capturing the market and end user demand information in accurate, timely (real time) and relevant manner: capturing at all times the Point-of-Sales, sell-through and channel inventory information. It also necessitates the ability of being able to, in a proactive manner, search for alternative supply scenarios, carry out risk and profitability analysis in almost real time manner and prepare the needed capability and capacity to serve the foreseen customer demand when the triggering order arrives.

4 Global Enterprise View to Demand Chain Information Management

Nokia Mobile Phones is present on market of more than 120 countries in the world and has a global manufacturing and logistics infrastructure enabling the combination of local responsiveness and global synergy in form of flexibility, optimum use of resources and lowest total cost. Nokia Mobile Phones manufacturers cellular phones for all major systems in the world.

The main information flows at Nokia Mobile Phones Demand Chain consist of *Planning process information* and *Execution process information* flows. Planning process captures the best possible view of market and customer demand in order to plan and implement required capacity and capability to meet the demand. Execution process is customer order pull driven focusing on fulfillment of customer orders rather than executing to plan. The objective of logistics Information Management is to establish information systems support for these integrated business processes by

providing seamless information capturing, integration, visibility and transparency enabling demand based steering of the supply chain.

In the process of searching the maximum exploitation of market and business opportunities and global economies of scale, the main objective is to achieve *responsiveness* through regional supply and *flexibility* through reallocation of global resources in line with market and customers demand at any given time. In order to do this it is of vital importance that a company has global business processes and respective information systems so that customers can be served by reconfiguring the supply chains to meet the emerging and changing customer demand. This approach also allows a flexible combination and reconfiguration of focused factories and regional factories as part of the supply chain.

Other special challenges and requirements in Global Demand Chain Information Management are in seamless process and product quality management and in product data management including configuration control and change management. Seamless integration of product management information is vital for the integrated development and management of global product families and regional and local product variants.

5 Key Requirements for the Information Management Solution

Based on the theoretical framework of Demand Chain Management as well as on practical needs of a global enterprise, the key requirements for a state-of-the art Demand Chain Information Management solution can be summarized as follows:

Strategic direction and focus

The creation and implementation of Information Management strategy need to be derived from and guided by business strategy and key business process requirements rather than by technology, functional or internal administration and control demands.

Integration

Key aspects of integration that need to be covered are business process integration including customers and suppliers, end-to-end demand and availability information integration and integration of process wise performance management. Also, seamless integration of product management information is needed in order to manage global and regional/local product families and products.

Information coverage and availability

The foundation for successful Demand Chain Management is access to real time Point-of-Sale and channel inventory information and sharing the demand information between all parties in the chain end-to-end including customers and suppliers.

Information quality

As Demand Chain Management is to great extent about information management the quality of the end result is of course dependent on the quality of the information. Information quality can be described by following characteristics:

- relevance
- timeliness
- continuous flow
- validity
- accuracy
- intelligibility
- accessibility
- visibility

Decision making support

Information system should be capable of identifying exception situations in order to guide management attention and decision making to these critical areas. This is particularly important when the number of transactions, customers and products is large and therefore due to massive amount of information it becomes difficult to spot the areas requiring focused attention. Handling of these exceptions must be supported by proper tools that enable the identification and almost real-time simulation of alternative supply solutions and their risk and profitability analysis.

Flexibility and Adaptability

Flexibility and adaptability are of strategic importance: market and industry changes are today faster than ever and being able to change and adapt IT solutions to new requirements rapidly is very important. Unfortunately, there is too often major inertia and slow-down factor in implementing improved or re-engineered business processes due to rigidity and inflexibility of information management tools. This is a major challenge especially in case of enterprise systems.

Cutting down the cost of complexity

The best way to reduce the development and running costs of the Information Management solution is to narrow down different standards and systems used in the company. This reduces complexity, number of interfaces and development and maintenance cost. Normally this also improves the integration of key business processes as interfaces and boundaries between different systems gets minimized.

6 Summary

The role of Information Management as an enabler and contributor to successful business strategy implementation has been discussed. Creation and implementation of IM strategy and investment decisions need to be guided by business strategy and needs rather than by technology, functional or internal administration and control demands. The key in Demand Chain Management is the continuous flow and sharing of the demand information from customers and end users through distribution and manufacturing to suppliers. The role of Information Management and Technology is to be a key enabler by providing means of capturing the market and end user demand information in accurate, timely (real time) and relevant manner and sharing this information across the whole chain. The paper concludes that the key

requirements for the Demand Chain Information Management system are strategic direction and focus, integration, information coverage and availability, information quality, decision making support, flexibility and adaptability as well as cutting down the cost of complexity.

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BIOGRAPHIES

Pertti J. Korhonen (born 1961 in Tampere, Finland) is Vice President, Global Logistics and Member of the Management Board at Nokia Mobile Phones. He has held several positions in different locations at Nokia Mobile Phones since 1987: Integrated Circuit Design Engineer, Design Manager, Product Development Manager, Vice President, Product Development (R&D, Oulu, Finland); Project Executive (R&D, Camberley, England); Vice President, Manufacturing Europe (Finland). Mr Korhonen received his M. Sc. (EE) in Microelectronics and Telecommunications at University of Oulu 1987.

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