UNIT 3- SCM SYSTEMS DEVELOPMENT, DEPOLYMENT & MANAGEMENT

STAKEHOLDERS IN SUPPLY CHAIN INFORMATION SYSTEMS

INTRODUCTION

Enterprise information systems enable information integration across internal business functions and among business partners. As the activity of enabling information integration evolved over the years, the costs (direct and indirect) of managing information systems have become a challenge. There is nothing constant in business except "change". Customers, suppliers, market structures and technology changes impact every business more than ever in the current era of globalization.

STAKE HOLDERS IN SUPPLY CHAIN MANAGEMENT

Supply chain management involves enterprise and its trade partners working together as a single enterprise to provide valuable goods and services to end customers. As a result, it ideally creates value for the enterprise and its supply chain partners. From enterprise view point there are many stakeholders involved in enterprise supply chain.

Internal stakeholders

These people plan and execute enterprise functions and are directly responsible for its performance. Business leaders, business managers, technical managers and operations executives are four key internal stakeholders in an enterprise.

Business leaders: These are the people who envisage business growth, influence work culture and set direction for effective and efficient business performance. They share enterprise vision and work together in accomplishing various critical missions leading to realization of shared vision. The decisions taken by business leaders tend to impact not only enterprise performance but also its supply chain partners performance. For example, the decision to implement just in time (JIT) philosophy in production environment leads to reduced inventory for enterprise and triggers process improvement in its suppliers enterprises to support JIT.

Business managers: These are the people who are responsible for operational performance of the business functions. They work with business leaders to develop operational plans (includes multiple business functions) and play a lead role in business operations execution. Internally, they coordinate with other mangers and control business process execution. Beyond the enterprise, they interface supply chain partners for supply chain coordination and play a critical role in supply

chain integration. For example, sales and distribution managers coordinate with distribution partners to understand the stock positions and generate better forecasts for a time period.

Technical managers: These are the people who are responsible for operational performance of technical functions. They work with business leaders to develop technology plans (includes plant and machinery, research and development, information systems) and play a lead role in technical operations execution. Internally, they coordinate with other managers and control technology functions. Beyond the enterprise, they interface supply chain partners particularly with suppliers in design collaboration, quality standards conformance and technology evaluation areas. They also interface with customers through technical support and service training areas. Like business managers, they also play a critical role in supply chain integration. For example, production managers coordinate with suppliers in early stage of product development to reduce time-to-market.

Operations executives: These are the people who execute business and technical activities. They work with business and technical managers in executing specific transactions or activities. Internally they work as small teams to complete assigned tasks. They also interface supply chain partners in executing supply chain management processes. Because of their first hand execution experience, they provide valuable information related to supply chain partners transactions. For example, procurement executive or buyer interacts with suppliers to procure raw materials is a good resource who can provide inputs on potential savings opportunities. The production engineer who works with machines is a very good resource who can provide inputs on improving machine operations.

External stakeholders

These stakeholders participate in business transactions and directly or indirectly influence enterprise performance. Customers, suppliers, third party service providers, governments and financial institutions are five key external stakeholders in an enterprise.

Customers: From supply chain perspective, customers exist in multiple levels (echelons or tiers) based on the enterprise sales model as illustrated in figure 2.

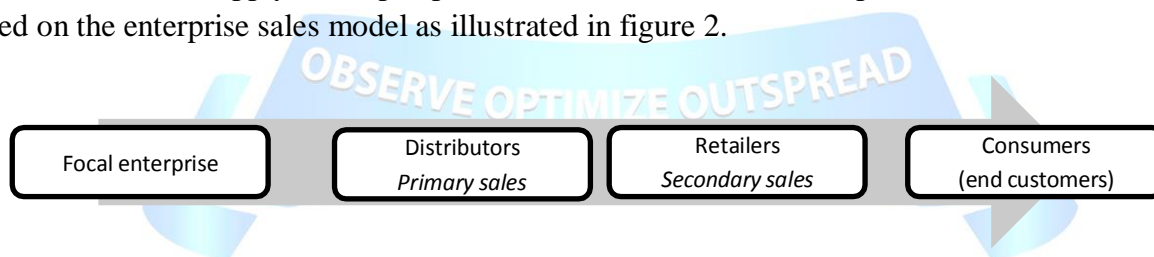| Focal enterprise | Distributors *Primary sales* | Retailers *Secondary sales* | Consumers (end customers) |

Figure 2: Multiple levels of customers

The characteristics of customers at each level differ. It is equally important for the enterprise to understand requirements at each customer level to design and manage better customer relations. For example, the distributor of an health care product is interested in long term business proposition with better margins, whereas the end consumer might look for better quality products available anywhere, anytime.

Suppliers: Similar to customer perspective in supply chain management, suppliers also exist in multiple levels (echelons or tiers) as illustrated in figure 3.

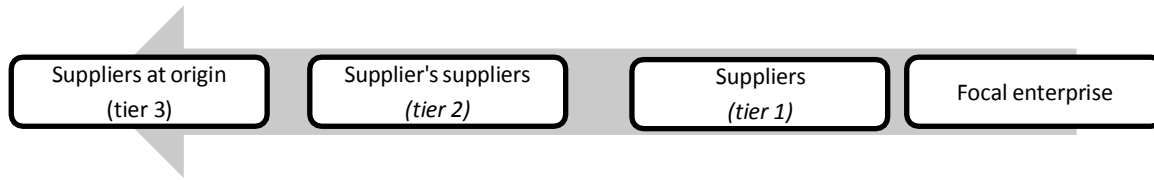| Suppliers at origin (tier 3)	Supplier's suppliers *(tier 2)*	Suppliers *(tier 1)*	Focal enterprise

Figure 3: Multiple levels of suppliers

The characteristics of suppliers at each level differ. It is equally important for the enterprise to understand sourcing possibilities at each supplier level to manage better supplier relations. For example, the tier 1 supplier of an automobile original equipment manufacturer is interested in strategic supply contracts with relatively stable product designs whereas the tier 2 suppliers might look for better asset turnover through relatively standardized component designs.

Third party service providers: From supply chain management perspective, third party service providers are important to improve focus on core competencies as illustrated in figure 4. Enterprises tend to outsource non-core activities to specialized service providers after care evaluation of their capabilities. As the third party service providers' capabilities complement enterprise core competencies, overall competitiveness in the market improves.
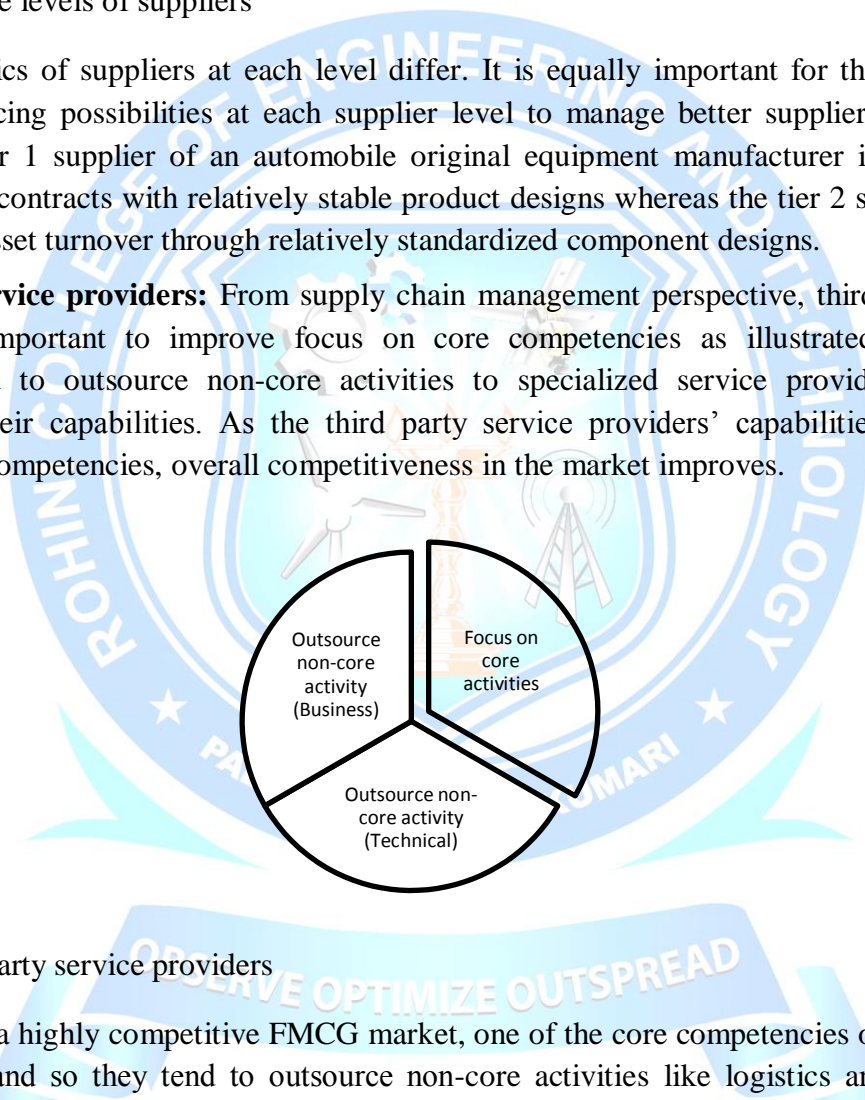

Figure 4: Third party service providers

For example, in a highly competitive FMCG market, one of the core competencies of brand owner is "marketing" and so they tend to outsource non-core activities like logistics and information technology management to specialized third party service providers. In FMCG, logistics and information technology play a major role in improving product availability through effective distribution of products and information.

Government (regulatory): The globalization of trade result in increased export and import of goods and services in a nation. To provide level playing field for domestic enterprises and to avoid unwanted goods and services governments evolve regulatory structures. The bilateral and multilateral trade agreements between nations have resulted in coherent regulatory frameworks to foster trade. Enterprises conduct business activities in compliance with regulatory framework of

the nation or group of nations. For example, there are many regulations in India on environment, labor welfare, safety, infrastructure and corporate / financial aspects related to business. India is also part of regional trade agreement (South Asian Free Trade Agreement) with its neighboring countries (India, Sri lanka, Pakistan, Bangladesh and Nepal) to foster trade in south Asian region. Every enterprise with activities related to exports, imports and trading of goods and services in India interfaces with The Central Board of Excise and Customs (CBEC), the national agency in India.

Financial institutions: Huge volumes of business transactions result in equally huge financial outcomes. The financial institutions play a significant role in facilitating enterprise financial transactions. They supply financial resources to enterprises in the form of loans and also enable financial transactions between enterprises as a trusted third party in trade. For example, national banks provide "bill of lading", a critical financial instrument that enables enterprises to conduct foreign trade.

4.1 STAKE HOLDERS IN SUPPLY CHAIN INFORMATION SYSTEMS

Supply chain information systems enable integration of enterprise and its trade partners for seamless information flow that drives product and cash flows in enterprise supply chain. As a result, they ideally create value for the enterprise and its supply chain partners in the form of information assets. Like any other forms of assets, the information assets can be reused or repurposed to meet the enterprise supply chain goals. From enterprise view point there are many stakeholders involved in enterprise supply chain information systems.

Internal stakeholders

These people plan, create and manage enterprise information systems and are directly responsible for its performance. Architects, business analysts, project managers and systems engineers are four key internal stakeholders in the enterprise information systems organization.

Architects: These are the people who envisage information systems structure and set direction for effective and efficient information systems performance. They share enterprise vision with business leaders and work together in accomplishing various critical missions leading to realization of shared vision. The decisions taken by architects tend to impact not only enterprise information systems performance but also its supply chain partners information systems performance. For example, the decision to implement information security layer in electronic transactions environment triggers additional authentication activity for its supply chain partners. It involves supply chain partner registration, verification and approval as a periodical activity. The result is increased security to conduct transactions over internet resulting in increased transaction speed between enterprise and its supply chain partners.

There are three types of architects:

a. *Enterprise architects:* These people assist the business stakeholders (as listed in section 1.1)

and business analysts in determining the capability of existing systems and required enhancements to execute business plans. They are the people who are aware of enterprise existing IT infrastructure (all information system resources) and leverages solution architects skills to assess and understand enterprise information systems strengths and weaknesses.

b. *Solution architects:* These people understand business goals and drive necessary information system solutions projects to meet them. They work together with business leaders and managers to understand business requirements and translate them into actionable applications. It includes not only communicating with all the stakeholders involved in information systems projects, but also user adoption, productivity and financial gains.

c. *Infrastructure architects:* These people complement solutions architects with IT infrastructure evaluation and setup that is necessary to create information system (actionable solution). They deliver value through technical support in IT infrastructure, deployment and removing roadblocks related to configuration and security.

Business analysts: These people are business domain experts (like six sigma, lean manufacturing, supply chain, management accounting, and customer relationship management). They support business stakeholders to identify and define the strategy behind the total solution. Their focus will be on defining and solving business problems. The solutions architect and business analyst work together to design and apply appropriate technology related to actionable business plan. In addition they also ensure that timely deployment of technology solutions.

Project managers: These people are responsible for project planning, communication and administration. They coordinate budgets, schedules and resources for the solution. They follow standard project management methodologies that emphasize thorough upfront planning. As part of planning they work along with solution architects to arrive at work breakdown structure. The work breakdown structure determines tasks, dependencies and assigns dates and resources for each task.

Systems Engineers: These people translate the architecture to actionable information system. They follow structured models to build, test and deliver actionable applications. Post implementation, they also perform solution maintenance operations and support end users in effective utilization.

External stakeholders

These stakeholders are either beneficiaries of information systems or participate in creating and managing information systems. They include end users (beneficiaries), ICT suppliers, ICT third party service providers and government (regulatory).

End users: These are the people who use the information systems to perform business transactions and make decisions. The information system may enhance end users performance or redefine their roles and impacts overall business plan execution. If the information system and business plans are aligned, there is success, otherwise it leads to issues.

ICT Suppliers: These enterprises supply necessary IT infrastructure (application software and hardware) required to build and manage enterprise information systems. They are involved in research and development of new technologies that can be applied to solve existing business problems and support growth strategies. For example, Oracle is a relational data base system (RDBMS) and application software supplier. The R&D teams at Oracle keep track of changing business conditions and develop innovative solutions to solve business problems through their RDBMS oriented applications. HP is another supplier that provides required IT infrastructure for building and enhancing high performance information systems.

ICT third party service providers: These enterprises provide required services to plan develop and manage enterprise systems. They provide complementary technical infrastructure, support development and management of information systems through dedicated professional project based team structures. They improve enterprise focus on core competencies through outsourcing information systems projects. For example, the telecommunications provider complements enterprise information systems development by providing necessary infrastructure to create virtual private networks connecting distant geographies. The information technology service providers complement enterprises in developing information systems with their specialized capabilities (includes skilled people, IT supplier alliances, know-how and best practices).

Government (regulatory): The increasing dependency on information systems for data processing, transmission of data over networks has created new frontiers in information security. Ranging from statutory audit to digital forensics, the information security is evolving as a new paradigm in information systems. Enterprises that deploy information systems have to comply with government regulations related to information security. For example, personal information of employees, trade partners and customers are collected for business purposes by many enterprises. Privacy of individual information is a very important regulation to be followed in conducting business transactions. The cyber laws are formulated and are enforced to identify and notify suspicious transactions that may be against interest of the national security.

4.2 SELF-ASSESSMENT QUESTIONS

1 What is the relationship between supply chain management function and its information systems?
2 What happens if there is a difference in perception about business processes among supply chain stakeholders and its information system stakeholders?
3 Write a brief note on supply chain function stakeholders.
4 Write a brief note on supply chain information systems stakeholders.