WORLD CLASS SUPPLY MANAGEMENT™

World Class Supply Management™ is the philosophy of continuously improving the process of design, development, and management of an organization’s supply system, with the objective of improving the bottom line. The terminology of “world class” recognizes that companies compete in an existing or impending global environment. As a philosophy, World Class Supply Management™ spans functional boundaries and company borders. The philosophy of World Class Supply Management™ requires change driven by upper management to shift decision-making processes from an internal department or single company focus toward optimization of the supply chain. Through continuous improvement, World Class Supply Management™ is an ever-moving target that focuses on supply chain process improvement. World Class Supply Management™ requires the development and management of institutional trust. World Class Supply Management™ involves purchasing, but is far more strategic. A world-class supply manager is not departmentally or internally focused, but concentrates on proactively improving processes with the long-term goal of upgrading the competitive capability of the firm and the firm's supply chain.

Implementing World Class Supply Management™

In order to bring their supply management systems to world-class status, senior management must recognize supply management's critical nature and support the required transformation. One of the most visible ways of demonstrating its support of this transformation is the appointment of the Chief Procurement Officer at an organizational level equal to that of marketing, engineering, and operations. The transformation must be carefully planned and executed. Getting top management's commitment and everyone's involvement are keys to success. Firms must know where they are in relation to where they want to be. Benchmarking best-in-class practices and developing metrics enable firms to establish their progress towards World Class Supply Management™. Appropriate action plans and metrics allow them to focus on their vision and continuously improve their contribution to the bottom line. Figure 1 provides a road map for implementing World Class Supply Management™.

SUPPLY CHAINS AND NETWORKS

The supply chain extends from the ultimate customer back to Mother Earth (See Figure 1). The chain is viewed as a whole, a single entity rather than fragmented groups, each performing its own function. Money enters the supply chain only when the ultimate customer buys a product or service. Transactions within the supply chain simply allocate the ultimate customer’s money among the members of the chain. A firm's supply system includes all internal functions plus external suppliers involved in the identification and fulfillment of needs for materials, equipment, and services in an optimized fashion. This supply system plays a key role in helping the firm satisfy its role in its supply chain.

Supply chain management is topping boardroom agendas in the U.S. and abroad as a vital part of the “race day” capabilities required for successful mergers, acquisitions, and alliances. Professor Charles H. Fine of M.I.T. writes that “…supply chain design is the meta-core competency for organizations.”

The Internet allows supply chain managers to manage their supply chains collaboratively and to synchronize their operations. The results: reduced cost, better time management, improved competitiveness and profitability for all members of the chain. Lisa Henriott, Director of Product Strategy and Marketing at Manugistics’ e-Chain Technologies business unit, writes: “In the future, an organization's success will be driven by its ability to compete effectively as a contributing member of dynamically connected supply chain communities, not as an isolated
The Progression to World Class Supply Management™

Clerical
- Process paperwork
- Confirm actions of others
- Emphasis: Convenience
- Relationships: Personal
- Bottom line impact: Overhead
- Reporting: Very low level
- Data: Not available

Mechanical
- Transactional focus
- React to requisitions
- Not involved in key source selections
- Emphasis: Purchase price
- Relationships: Transactional/adversarial
- Bottom line impact: Revenue neutral
- Reporting: low level
- Data: Used to expedite

Proactive
- Coordinate Procurement System
- Develop Suppliers
- Long-term Contracts
- Involved in development of requirements
- Plan for recurring requirements
- Procurement adds value
- Active in source selection
- Near defect-free materials and services
- Emphasis: Cost, quality, timeliness
- Relationships: Transactional & Collaborative
- Bottom line impact: Profit contributor
- Reporting: Upper management
- Data: Facilitates sourcing & pricing
- Fulfill social responsibilities

World Class
- Supply management a core competence
- Strategic sourcing
- Monitor supply environment
- Develop and implement commodity strategies
- Supply base by design
- Develop & manage alliances and networks
- Time based competition
- Virtually defect free materials and services
- Leverage supplier technology
- Integrated supply strategy
- Manage risk
- Emphasis: Total cost
- Relationships: Transactional, collaborative, and alliance
- Bottom line impact: Increase shareholder value
- Reporting: Member, executive group
- Data: Facilitates strategic planning
- Understand key supply industries

*Adapted from The American Keiretsu, David N. Burt, Michael F. Doyle, Business One Irwin, Homewood, Illinois, 1993.
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Supply chains are relatively easy to describe and visualize, but the terminology of a chain is already dated. Traditionally, companies have connected with one another in simple, linear chains, running from raw material producers to distributors to retailers. The reality of the situation is that most firms already are or soon will be members of supply networks as portrayed in Figure 3. (Networks are flexible virtual systems linked together by communication systems and alliances. They optimize the flow of materials and services, information and money. Networks focus on the ultimate customer. They are designed and managed so that one member does not benefit at the expense of another. World-class networks are highly adaptive; they focus on speed; they are innovative; and they are tightly integrated.)

Robert A. Novack, in his chapter in the Purchasing Handbook (6th ed.) writes, “Organizational boundaries between firms within a supply chain will become even more blurred as each firm becomes specialized in its contribution to the supply chain and its investment in the success of the supply chain increases.”

Rich Sherman, Senior Vice President, Visioneering, EXE Technologies, participating in a round table of eleven e-commerce visionaries in late 1999 observed that, “The link and the chain are gone. They are already obsolete. What we’re looking at is much more of an atomic model with no straight line whatsoever. It looks more like DNA. It’s all about nodes, communications, and seamless information transfer.”
THE EXTENDED ENTERPRISE
Jeffrey Dyer carries the concept of supply networks one step further. Based on eight years of study of the automotive industry, Dyer observes that when a group or network of firms collaborate in partnership (alliance) fashion, this is sometimes referred to as a strategic network, virtual corporation, or extended enterprise. When the group of firms view each other as partners (members of a supply alliance) and collaborate effectively for the good of the larger group, then they leave established an extended enterprise characterized by virtual integration.

SUPPLY MANAGEMENT AND THE BOTTOM LINE
Supply management must be a core competency based on its overwhelming impact on the firm's bottom line. Supply management directly affects the two factors which control the bottom line: total costs and sales. Supply management also affects the investment in assets. Accordingly, supply management has a major impact on a firm's return on investment (Please see figure 4.).

World Class Supply Management enables us to maximize our bottom line in an ethical manner. Figure 5 shows how supply management can drive sales up and cost down. This impact on the firm's net income has a major impact on shareholder value.

Increased Sales
Supply management has a significant impact on the firm's sales, principally in the following four areas.

Faster to Market or Time-Based Competition Thirty years of marketing research have demonstrated the importance of being early to market. In many cases, the first firm to introduce a successful new product or service will hold 40-60% of the market after competition enters the picture. This research also demonstrates that the profit margins enjoyed by the first firm to introduce a new product tend to be twice that of its competitor, as first reported in the PIMS approach. Firms which have embraced World Class Supply Management have reduced their new product development cycles by an average of 30% as a direct result of a cross functional approach to product development (also known as concurrent engineering). Purchasing and carefully selected suppliers are key members of these cross-functional teams.

Time based competition also includes the firm's ability to meet unexpected surges in demand for its products. In many cases, a firm's ability to ramp up production is constrained by its suppliers' abilities to meet such surges in demand. The development and management of a competent, responsive supply base plays a critical role in the firm's ability to meet unexpected demand.
Figure 4: A graphic view of the relationships of basic elements which influence return on investment. The figures in parentheses reflect a 5% percent reduction in the cost of materials.
Figure 5: A graphic representation of supply management’s impact on the bottom line.

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Improved Quality  We are all sensitive to the quality of the products and services we purchase. An automobile with a reputation for transmission problems will drive potential customers to its competitors. Conversely, a firm whose product or lines of products have a reputation for quality gains market share over its competitors and frequently is able to command premium prices.

Some 75% of many manufacturers’ quality problems can be traced back to defects in purchased materials. (The percentage of quality problems that can be attributed to defective incoming materials for a services provider is usually less, but still significant.) Thus, if a manufacturer or service provider is able to reduce defects in incoming materials, it can improve the quality of its products in the marketplace. Firms that embrace World Class Supply ManagementSM work with their suppliers to design quality into the suppliers’ products and maintain quality during production. The result is virtually defect free incoming materials, improved quality in the marketplace, more sales and improved profit margins.

Pricing Flexibility  The University of San Diego research study cited above indicated that a world-class approach to supply management will reduce the total cost of ownership associated with purchasing and owning or leasing materials, equipment, and services an average of 25%. When the cost of producing an item or service is reduced, marketing is given the gift of pricing elasticity. Through the application of sound economic principles, marketing can estimate whether net income will increase more by (a) holding selling price and sales volume constant and increasing net profit per unit, or (b) reducing the sales price, thereby increasing sales volume.

Innovation  Research conducted by the University of San Diego indicates that of 240 firms surveyed, approximately 35% of all successful new products were the result of technology gained from their supply base. This leveraging of supplier technology is a major source of income for these firms. Collaborative and alliance relationships with the firm’s supply base play a key role in ensuring and enhancing this technology flow. The development and management of these supplier relationships is a key responsibility of supply management.

Lower Total Cost of Ownership

The total cost of ownership is the summation of the costs of acquiring and owning or converting an item of material, piece of equipment or service and post ownership costs (the disposal of hazardous and other manufacturing waste and the cost of lost sales resulting from poor product quality reputation caused by defective materials or purchased services becoming incorporated in the end product or service).

Acquisition Cost  The acquisition cost or price paid for an item or service is normally a major component of the total cost of ownership. As will be seen in many of the following chapters, numerous actions may be taken to reduce acquisition cost. A few such activities are: specification of the most cost effective material or item of equipment, use of the appropriate specification, standardization, good sourcing, pricing practices, etc.

Processing Cost  The investment in developing sourcing and pricing requirements, and then ensuring that they arrive on time in the quality specified can be reduced significantly through the application of efficient supply management processes and techniques.

Quality Cost  Costs are incurred in ensuring that the buying firm receives the optimal level of quality. These costs may be reduced through the application of progressive quality techniques, such as the design of experiments and statistical process control. Selection of suppliers capable of producing the desired level of quality and then certifying their design and manufacturing systems can improve incoming quality while reducing administrative quality costs.

Downtime Cost  Downtime frequently is the largest component of the total cost of ownership for many items of production and operating equipment. One minute of downtime in a production line may cost $26,000 At this rate, an hour can cost $1,560,000. Thus, when purchasing equipment, the sourcing team must place as much -or more- emphasis on downtime as on purchase price.
**Risk Cost**  Firms spend millions of dollars in efforts to minimize risk. These firms maintain inventories and/or dual or even triple sources to ensure continuity of supply. Carefully developed and managed relationships with appropriate suppliers can eliminate the need for inventory and/or dual sources.

**Cycle Time Cost**  While difficult to quantify, the shorter the cycle time for virtually all activities, the lower the cost. The shorter the cycle time to bring new products to market, to develop a statement of work, to select a new source; the lower the total cost.

**Conversion Cost**  Machine time, manpower, process yield lost, scrap, and rework are examples of conversion costs. These costs are every bit as real as the purchase price of an item entering the production process. A pound of brass may cost twice as much as a pound of steel; but the higher acquisition price for the brass may more than be offset by savings in machine and manpower costs during conversion of the brass to a component or end product.

**Non-Value Added Costs**  A careful analysis of all of the costs involved in bringing an item or service to market frequently reveals that 40-60% of the costs involved no value added! Robert Handfield indicates that estimates of the amount of time spent on non-value activities can be as high as 80 to 90% of the total time required to complete a cycle. James P. Womack and Daniel T. Jones, in their book Lean Thinking indicate “that it takes an average of 11 months for the can of cola in a domestic refrigerator to actually get there...During that 11 months, the time that the material actually being converted as opposed to simply waiting is a mere three hours” All members of the supply management system (e.g., design, manufacturing and quality engineering, manufacturing, and procurement) must be on the lookout for non-value added activities at any and all stages of the system.

**Supply Chain Cost**  The development and management of supply chains and supply networks requires a significant investment, primarily in the form of human resources. The proper selection, training, and education of the individuals involved in these activities, together with the application of software systems can reduce the necessary investments.

**Post Ownership Cost**  Such costs frequently are overlooked but must be considered when addressing the total cost of ownership. They include the disposal of scrap and other waste, customer service, warranty costs and the cost of lost sales resulting from customer dissatisfaction with the product.

**SUPPLY MANAGEMENT AND RETURN ON INVESTMENT (ROI)**  Investors and other sources of funds frequently evaluate top management’s performance by calculating the return on the total capital invested in the business. Figure 4 depicts the relationships of basic elements that influence return on investment. The figures in parentheses reflect a five percent reduction in the cost of materials for a manufacturing firm. Notice how, in our example, a 5% reduction in material cost increases ROI from 10% to 13%, a thirty percent increase!

**CONCLUDING REMARKS**  Supply management must be a core competency based on its impact on the bottom line. The philosophy of World Class Supply ManagementSM requires change driven by upper management. The decision-making process must shift from an internal department or single company focus toward optimization of the supply chain. World-class supply managers proactively improve the supply processes with the long-term goal of improving the competitive capability of the firm and the firm’s supply chain.

**ENDNOTES**

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Dave Nelson and Jonathan Stegner of John Deere have joined the gifted writer, Patricia Moody, to produce the book “The Purchasing Machine.” The book describes how ten top companies use best practices to manage their supply chains.