Global Supply Chain Management Strategy

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The Supply Chain Research Group at the University of Tennessee (Mentzer 2004, p. 22) defines supply chain management (SCM) as

> The systemic, strategic coordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.

Inherent in this view of SCM is an acceptance that traditional functional areas represent components of a strategic firm orientation. Further, the definition highlights the perspective that the enterprise (or *we*) encompasses more than just the focal firm; it is also concerned with the entire set of organizations engaged in delivering end value to the customer. To global SCM-oriented firms, *we* refers to all the firms collectively within the supply chain network, versus *we* meaning one's own firm. Highly SCM-oriented firms think in terms of the overall global system when considering most critical processes. This perspective on how an organization defines who *we* stands for is central to understanding the relationship between firm strategy and behavior and SCM.

The following sections review research from the strategic management literature that provides an

underpinning for global SCM strategy (GSCMS). In addition, literature from logistics, operations management, purchasing/procurement, and marketing are reviewed to specify external environmental characteristics and internal processes and capabilities that are critical to establishing a sustainable competitive advantage through GSCMS.

Background

Determining how organizations invest scarce resources to achieve objectives that establish and maintain a superior competitive position or advantage is at the heart of strategy development (Porter 1985; Day 1994). Traditionally, the key to competitive advantage involved the choice of where to compete and defending market share in these segments using price and product performance attributes. Contemporary strategic thought, however, considers competition a “war of movement” (p. 62) that depends on anticipating market trends and changes in customer needs (Stalk, Evans, and Schulman 1992). Competitive advantage results from implementing value-creating strategies that are not currently implemented by competitors (Barney 1991). Such strategies involve leveraging superior competencies to create customer value and achieve cost and/or differentiation advantages, resulting in market share and profitability performance (Day and Wensley 1988; Prahalad and Hamel 1990). The advantage becomes sustainable when other firms are unable to duplicate benefits that are perceived and valued by customers (Coyne 1986; Day and Wensley 1988). Firms may set up barriers that make imitation difficult by continually investing to sustain or improve the advantage.

The strategy-structure-performance (SSP) paradigm provides a way of viewing the nature of strategic planning (Galunic and Eisenhardt 1994). The underlying premise of the SSP paradigm is that a firm’s strategy, created in consideration of external environmental factors, drives the development of internal structures within which resources, capabilities, and competencies can be

brought to bear (Galbraith and Nathanson 1978; Miles and Snow 1978). Firms that have properly aligned strategy with structure are expected to perform better than competitors that lack the same degree of strategic fit (Child 1972; Galbraith and Kazanjian 1986; Galunic and Eisenhardt 1994; Habib and Victor 1991; Hoskisson 1987; Lubatkin and Rogers 1989; Miles and Snow 1978, 1984; Rumelt 1974; Wolf and Egelhoff 2002).

The SSP paradigm views strategic choice as emerging from an enterprise's assessment of externally based opportunities. Strategic planning, therefore, focuses on identification of the nature of the external environment, including domestic and global markets, government and regulatory conditions, characteristics related to global supply chain and industry, the nature of competition, and firm-related characteristics such as management style, shared values, and culture. Structure refers to the way the enterprise organizes its resources, including formal organizational lines of authority; communication systems and information flows; coordination techniques and processes; development, reward, and compensation systems; and performance evaluation systems (Chandler 1962; Galbraith and Kazanjian 1986; Miles and Snow 1978).

SSP relates the need for fit between externally driven strategic choice and the structural components used to operationalize that choice. It is relatively silent, however, regarding how resources can be invested to create the core competencies through which competitive advantage is derived (Hofer and Schendel 1978; Van Hoek, Commandeur, and Vos 1998; Varadarajan and Jayachandran 1999; Walker and Ruekert 1987; Webster 1992). The resource-based paradigm or view (RBV) presents an alternative to strategic planning that finds competitive advantage in a firm's internal capabilities and resources (Barney 1991; Wernerfelt 1984). The objective is to view firms in terms of their resources rather than their products. In the RBV, a firm seeks to create situations in which the positioning of its internal resources directly or indirectly makes it more difficult for other firms to "catch up" (Wernerfelt 1984, p. 173). RBV, therefore, centers on

leveraging internal firm resources and capabilities to gain competitive advantage. From a decision-making standpoint, RBV requires firms to identify the skills and resources that exert the most leverage on positional advantages and future performance and then allocate resources toward those with the highest potential leverage to improve performance with the least expenditure (Day and Wensley 1988).

The RBV views a firm as a bundle of resources that can be used to influence performance, where resources include anything that can be thought of as a strength or weakness of a firm and consist of both tangible and intangible assets that are tied semipermanently to a firm. Examples include brand names, in-house knowledge of technology, skilled personnel, machinery, trade contracts, and efficient procedures (Wernerfelt 1984). On their own, resources are rarely productive; productivity requires the coordination and cooperation of teams of resources (Morgan, Strong, and McGuinness 2003). Resources joined in strategically advantageous combinations create capabilities (Day 1994; Day and Nedungadi 1994). Capabilities are defined sets of processes (Stalk et al. 1992) or dynamic routines (Lowson 2003) that reflect the way resources have been deployed (Dutta, Narasimhan, and Rajiv 1999) and applied to the environment (Chetty and Patterson 2002). It is a firm's capabilities, not simply the resources that they possess, that give it competitive advantage (Chetty and Patterson 2002, p. 70).

The integration of SSP and RBV facilitates understanding of how strategic planning results in a firm choosing one of several different strategic alternatives (see, e.g., Miles and Snow 1978; Porter 1985). Treacy and Wiersema (1995) emphasized the power of an organization that narrows down its focus to one of three different strategies: operational efficiency (low cost), product leadership (innovation), or customer intimacy (niche). The authors argued that firms needed to be competent in all three areas but should intensely focus on only one. Literature and practice, however, have been limited in their perspective on implementing these strategic choices. In

particular, the implementation of one or more of these strategic choices has typically centered on the focal firm and not on the broader supply chain. An organization with a high level of GSCMS orientation is posited as viewing implementation of strategic choice from the perspective of how it might align multiple firms to complement each other and work toward overall strategic goals that apply to the entire global supply chain network and not only to the focal firm.

Global SCM Strategy

The SSP concept of strategic fit is directly transferable to the management of individual enterprises within a broader global supply chain (Galbraith and Nathanson 1978; Miles and Snow 1978, 1984). The premise is that the degree or level to which an enterprise ascribes to a GSCMS orientation depends on an astute sense of environmental characteristics and conditions, including those of the global markets in which the enterprise competes and the internal characteristics of the enterprise itself.

The RBV paradigm is manifested across core capabilities in which a firm engages in executing its responsibilities as part of an integrated global supply chain. The capabilities encompass the coordinated efforts of all activities engaged in planning, implementing, and controlling demand, sourcing, operations, and delivery processes for products, services, information, and finances from the point of material origin to the point of ultimate consumption (Bowersox, Closs, and Cooper 2002; Mentzer et al. 2001). Resource investment to develop each capability in accordance with the organization’s GSCMS orientation is made across the structural elements identified within SSP (i.e., formal organizational hierarchy, coordination processes, information and communication systems, human resource systems, and measurement systems) (Chandler 1962; Galbraith and Kazanjian 1986; Miles and Snow 1978).

Performance measures must be integrated across firms and take both a holistic, end-to-end view

and a between-firm, dyadic view to ensure that the linkages at each step in the global supply chain are actively monitored and tuned (Antia and Frazier 2001; Christopher and Ryals 1999; Lambert and Pohlen 2001). Lambert and Pohlen (2001) proposed an approach to integrated global supply chain performance measurement that assesses the economic value added (EVA) of combined effort to demonstrate that the benefits of GSCMS occur across the extended firms engaged in the global supply chain. Specifically, they demonstrate that when overall value is created, each individual firm in the global supply chain also benefits by improving shareholder value in one or more of four distinct areas: revenue enhancement, operating expense reduction, and working capital and fixed capital efficiency.

The key to GSCMS success lies in the ability of managers to assess the global market and internal enterprise environmental characteristics to develop appropriate capabilities (value, product and service, demand, relationship, and resource management) utilizing SSP structural elements of formal organizational hierarchies, coordination processes, information and communication systems, human resource systems, and measurement systems.

Impacts on Strategic Orientation

In the following sections, the impacts of the global market and internal enterprise characteristics on the strategic decision regarding the degree to which the organization seeks to develop a GSCMS orientation decision is explored.

Global Market Characteristics

Research has identified key global market characteristics to include capacity and dynamism (Achrol and Stern 1988), munificence and complexity (Dess and Beard 1984), regulatory changes to specific industries (Forte et al. 2000), and degree of segmentation (Choi and Rajan 1997).

Environmental capacity refers to the perceived global economic and demand conditions characterizing the market's capacity to absorb resources of the global supply chain, whereas dynamism is the perceived frequency of change and turnover in global marketing forces in the environment. "Environments that are dynamic or shifting present greater contingencies to the organization . . . and therefore increase the relevant uncertainty faced by decision makers" (Achrol and Stern 1988, p. 38). Changing marketing practices and competitor strategies, as well as dynamic customer preferences, are likely to place increased pressure on inventory, long-range planning, coordination, and product mix decisions within the global supply chain (Leblebici and Salancik 1981). Similarly, the capacity represented by opportunities and resources provided by the global environment is likely to be a key factor affecting interorganizational relationships in global supply chains (Achrol and Stern 1988). The need for resources is an important factor behind forming interorganizational relations across borders. Global environments, "rich" in particular resources, including demand levels, generally result in fewer global supply chain strategies aimed at controlling or integrating processes within the firm (Dwyer and Welsh 1985), leading to less complex value chain configurations across borders.

The concept of munificence in the global environment is similar to that of capacity, in that it addresses the extent to which the environment can sustain growth within the organization or global supply chain (Dess and Beard 1984). However, munificence refers more specifically to complex external social relationships with institutional gatekeepers (e.g., local governments and thought leaders) who ensure flows of resources and opportunities. Current examples include political economies that provide capital, labor, and information flows across borders. The complexity, or heterogeneity, of the environment refers to the number and diversity of competing global supply chains with which the organization must interact in its competitive efforts (Dess and Beard 1984).

Forte et al. (2000) indicate that dynamic industry regulations influence organizational forms.

Extrapolating from this finding, it is clear that changing or incongruent regulations across borders influence global supply chain characteristics and designs. Regulations addressing both the tangible (i.e., components and finished products) and the service (e.g., logistics) offerings within global supply chains change consistently and are often driven by protectionist measures of local markets. As a result, global supply chain designs are influenced by local content and labor requirements, import and export regulations, and safety provisions, which often dictate the location of specific global supply chain activities and increase the difficulty in standardizing global supply chain efforts across multiple markets.

Finally, how markets are segmented relative to customer preferences influence global supply chains (Choi and Rajan 1997). For example, business-to-business provisions of products and services may need to be specialized for buyers in a single market (vertical segments) or can often be standardized across multiple markets. This is due to similarities in buyer preferences (horizontal segments) (Bolton and Myers 2003), enabling cost efficiencies at multiple points within the global supply chain. By identifying specific customer segments, some of which may transcend national borders, global supply chain managers can benefit from reduced costs, enhanced revenue, and the ability to differentiate their offering from the highly competitive marketplace (Mentzer, Myers, and Cheung 2004). However, in a global context, the ability of managers to serve specific segments effectively can be limited by regulations and political economies that restrict the ability to standardize the offerings and processes needed to do so. These, often dichotomous, environmental conditions (segment preferences and market regulations) alone account for the often exponentially more difficult management conditions faced by global, rather than single-market, supply chain managers.

In the rush to expand globally, firms have adopted different strategies in response to these key global market characteristics. Some firms adopt a market replication or transaction cost reduction

approach by entering foreign market environments that display characteristics similar to domestic ones (i.e., high similarity/low deviation between exchange partners' market environmental characteristics) (Rosenzweig and Singh 1991). Transaction cost analysis predicts this behavior due to a firm's ability to both specialize in a foreign market environment and benefit from economies of scale based on existing skills, knowledge, and assets developed in the primary market (Klein, Frazier, and Roth 1990). Matching foreign to home market environmental characteristics allows the firm to take advantage of extant competencies, tacit knowledge, routines, and standard operating procedures through replication in the new market.

There is no agreement, however, on the robustness of the transaction cost approach. Research has shown that maximization of environmental similarity can be counterproductive if organizational change is needed or if the firm has adopted conflicting goals to correspond to a complex competitive environment (Lengnick-Hall and Lengnick-Hall 1988). Environmental diversification offers flexibility to shift market penetration efforts and the location of global supply chain activities according to environmental conditions across countries (Kogut 1985; 1991; Kogut and Kulatilaka 1994).

Internal Enterprise Characteristics

The characteristics of the internal enterprise create the organizational environment within which firm strategies, structures, and performance exist. An orientation toward GSCMS must be predicated on an organizational culture and management philosophy that recognizes the importance and complexities associated with managing the risks, relationships, and trade-offs of global supply chain exchange (Trent 2004). Deshpande and Webster (1989, p. 4) define organizational culture as "the pattern of shared values and beliefs that help individuals understand organizational functioning and thus provide them norms for behavior in the organization." Schein (1985) introduced a model that demonstrates how an organizational culture can influence the

behavior of the members. At the surface level, visible artifacts of the organization include rules of conduct, dress codes, records, physical layout, stories, and rituals (Marcoulides and Heck 1993). These represent the overt behaviors and other physical manifestations of the organization (Gordon 1991). A second, less visible, level of culture consists of the organization's values. Values in a cultural sense represent the way things "ought to be." They serve as normative or moral guides for how group members deal with such issues as how people should relate to each other or exercise power (Schein 1985). At an even deeper level are the underlying assumptions, such as beliefs, habits of perception, thoughts, and feelings, that are the ultimate source of values and action.

Organizational culture is central to the determination of the level of GSCMS orientation. The culture of the firm is its "personality," which can be used by other organizations within the global supply chain, as well as its own employees, to determine the focal firm's appreciation for exchange in the value chain (McAfee, Glassman, and Honeycutt 2002). One of the key components of culture that influences GSCMS orientation is top management support. The upper echelon of the firm plays a critical role in shaping the organization's strategic orientation and direction (Hambrick and Mason 1984; Marcoulides and Heck 1993). Hence, firms in which top management is supportive of and committed to behaviors consistent with high levels of GSCMS orientation will potentially be more successful at managing their respective global supply chain (Cooper, Lambert, and Pagh 1997). Key to this success, however, is how thoroughly acculturated a company is to the GSCMS concept. When GSCMS orientation extends to all levels of a firm, it is more likely to be executed in a uniform and effective manner. This can become especially critical at the boundary-spanning level of the organization, where employees interface with, and make decisions relating to, other members of the global supply chain.

The internal enterprise environment is critical to the determination of GSCMS orientation. The

culture of the firm not only indicates how it interacts with the external environment (Bucklin and Sengupta 1993; Cooper et al. 1997), but it also governs the manner in which firms manage the capabilities associated with GSCMS.

Capabilities and Structural Elements of GSCMS

SSP and RBV support the notion that strategic orientation, adopted in response to external environmental characteristics, is implemented through the development of core capabilities. The management of value, products and services, demand, relationships, and rewards are core capabilities associated with high levels of GSCMS. Development of these core GSCMS capabilities is predicated on resource investment to align structure with strategic orientation. The following subsections center on discussions regarding the nature of core capabilities associated with GSCMS, defining each capability and relating high capability levels to key structural elements of formal organizational hierarchy, coordination processes, information and communication systems, human resource systems, and measurement systems.

Value Management

Value management, in the context of an integrated global supply chain, refers to two important and related concepts: value creation and value appropriation. Value creation addresses the global supply chain's ability to offer a better value proposition to customers than that offered by competitors (Gale 1994; Woodruff 1997). Value appropriation addresses firms' abilities to extract value from the marketplace at a sufficient level to meet earnings and profitability targets (Mizik and Jacobson 2004).

Value creation involves the generation of market intelligence and using it to guide operational execution (Gale 1994; Woodruff 1997; Woodruff and Gardial 1996). Market intelligence

generation enables an organization to understand what customers value and why, anticipate what they will value and why in the future, and understand customers' satisfaction levels with value created by their interactions or experiences with products, services, and processes. Operational execution guidance refers to the management of processes that help create the value customers want, ensuring that every stage from product and service conceptualization through product and service development, manufacturing, distribution, and communication contributes to the value proposition that customers' experience.

Both business customers and consumers think of value in at least five different ways. First, they think in terms of the trade-offs they make between benefits received and sacrifices made, the simplest form being the trade-off between quality and price (e.g., Hauser and Urban 1986; Lapierre 2000; Slater and Narver 2000; Teas and Agarwal 2000; Woodruff 1997; Zeithaml 1988). Second, customers think in terms of linkages between product and service attributes and the consequences created by using these product and service attributes. The linkages between product and service attributes and the consequences they create and the reverse (i.e., the linkages between consequences desired and attributes sought) are known as value hierarchies or means-end chains (e.g., Gutman 1982; Holbrook 1994; Lai 1995; Woodruff 1997; Zeithaml 1988). Third, customers often categorize value in terms of the functional, relational, and service benefits they receive in the light of the monetary and nonmonetary sacrifices they must make to obtain them (Gassenheimer, Houston, and Davis 1998; Lapierre 2000; Sheth, Newman, and Gross 1991). Fourth, customers view products and services within specific use situations and in the light of their core values, goals, and objectives (Woodruff 1997; Woodruff and Gardial 1996). Fifth, the customer value concept is hedonic value, the emotional component (e.g., enjoyment or pleasure) that customers derive from using products and services (e.g., Holbrook 1994).

Value management captures the voice of the customer from many sources throughout the integrated global supply chain, bringing customer-relevant information together into a central

location, regularly discussing and making sense out of customer data and acting on insights before competitors do or in a superior way (Flint et al. 2005). Structures created to support value management, therefore, must enable the organization to tune in to market demands. For example, firms often utilize cross-functional account management teams and colocation with customers to both capture complex aspects of customers' businesses and create superior value for these customers (Flint et al. 2005). Customer-value-focused firms communicate far down the integrated global supply chain to end-use customers, as well as immediate customers, to develop holistic images of the marketplace. They formally manage critical data such as customer-derived value assessments, projections of future desired value, satisfaction levels, and competitive customer value maps, utilizing this information within internal processes as well as within integrated global supply chain relationships to develop value propositions that direct process design, research and development efforts, and manufacturing expertise. Firms with high levels of value management also communicate the value their system brings to the marketplace, enabling other firms within their integrated global supply chain to extract value from the relationship. This integrated marketing communication ties together advertising, account management, promotion, and public relations messages and media in consistent and complementary ways to build and solidify brand, product, and firm images within targeted market segments. Extended to a GSCMS perspective, the planning and execution of integrated marketing communications is shared, coordinated, and possibly collaborated on across multiple firms in the global supply chain.

Value appropriation directs the firm to pursue the best means of extracting value from the marketplace (Mizik and Jacobson 2004). Value management measurement systems, therefore, provide firms with insight regarding when to pursue pricing or volume strategies. In cases where market prices are dropping at the end-use customer level, as is the case in the digital consumer electronics market, improvements in profitability often come from reducing costs at a faster rate

than the falling market price. Value management can also be leveraged in the marketplace in ways that translate into higher prices relative to competition. These higher prices come from such areas as more efficient interorganizational processes, more consistent and higher-quality products, more customized value propositions that include better order processing, better product availability, and more informed customer service representatives due to information systems, better product visibility, better product condition on arrival, and better product timeliness.

Product and Service Management

Product and service management involves those processes and activities concerned with the flow of goods and services, including planning, management, and execution of sourcing and procurement, conversion, and logistics. Two important concepts in product and service management include cycle time management and integration (Daugherty and Pittman 1995; Lowson 2003; McGinnis and Kohn 1993; Mentzer, Min, and Zacharia 2000; Srivastava, Shervani, and Fahey 1999.

Cycle time management involves managing the time required to capture actual or forecast orders and schedule procurement and/or production. Postponement and speculation represent opposite ends of a cycle time management continuum, with the appropriate location along the continuum dependent on unique product and demand characteristics. Postponement involves delaying the finishing and/or forward movement of goods as long as possible. Raw materials or finished goods can be stored in central locations within the global supply chain, waiting for downstream demand cues to signal the requirement to finish or move the order (Van Hoek et al. 1998). Once demand signals are known, acceleration speeds up order transmittal, processing, preparation, and transit so that a firm can translate orders into finished products quickly, eliminating wasted capital while capturing time-sensitive buyers better than competitors (McGinnis and Kohn 1993; Murphy and Farris 1993). Reducing the time required for order fulfillment activities allows businesses to

respond to demand fluctuations with less distortion of the order cycle process (Daugherty and Pittman 1995; McGinnis and Kohn 1990). Speculation involves procuring, manufacturing, and positioning finished goods in large volumes in anticipation of demand, enabling a firm to take advantage of economies of scale and market positioning of products.

Integration is a state existing among organizational elements that is necessary to achieve unity of effort to meet global supply chain goals such as improved service and lower total cost (Bowersox, Closs, and Stank 2003). Integration comprises two fundamental components, interaction and collaboration (Kahn and Mentzer 1996). Interaction represents the communication aspects associated with interdepartmental and organizational activities. Integration commits each department or organization to perform the roles that best focus their core competencies on creating value for the end customer, leveraging competency while reducing duplication and waste. Collaboration represents the willingness of departments and organizations to work together. It is characterized as the attitudinal aspect of interdepartmental and organizational relationships, representing an affective, volitional, mutual/shared process that achieves greater customer-relevant performance than that attainable by working independently. Another aspect of integration involves the integration of processes (Achrol and Kotler 1999; Srivastava et al. 1999). Structural elements must be developed to facilitate product and service management. In particular, process coordination and information and communication systems, supported by appropriate organizational hierarchy, and human resource and measurement systems, facilitate product and service management capability. Process modularization and/or standardization creates “a focused expertise with materials and processes to a point where it is much easier to identify sources of delay, unnecessary steps,” and redundancies (Jayaram, Vickery, and Droge 2000, p. 330). Improved coordination of global supply chain operations requires expertise that ensures use of common, standardized policies and procedures to facilitate day-to-day market

fulfillment operations, freeing resources to focus on emergent or exception conditions (Schonberger 1990, 1992). Standardization identifies the best operating practices across an organization and applies the methods and technologies across the entire product and service supraprocess. Adherence to common application of these best standards, methods, and procedures becomes the means to reduce operating variance. Product and service management is further enhanced by reducing working capital and capital investments (Srivastava et al. 1999) through developing expertise in simplification of processes. Doing so eliminates waste and redundancy, resulting from poorly designed and disintegrated work routines and processes, as well as overly complex operations and facility networks (Schonberger 1990, 1992).

Investment in communication systems to facilitate information exchange has been recognized as a way for firms to enhance product and service capability (Daugherty, Myers, and Richey 2002; Deeter-Schmelz 1997; Glazer 1991; Mabert and Venkataramanan 1998; Parsons 1983; Porter 1980; Porter and Millar 1985; Rayport and Sviokla 1995; Whipple, Frankel, and Daugherty 2002). At least three dimensions of communications systems exist: (1) information technology, which is the hardware, software, and network investment and design to facilitate processing and exchange across internal and external global supply chain entities; (2) information sharing, which is the willingness to exchange key technical, financial, operational, and strategic data; and (3) connectivity, or the expertise to exchange data in a timely, responsive, and usable format. Many different approaches can be employed to utilize these dimensions of information exchange, but the key is to accelerate the speed of information, which then can be substituted for physical inventories (Achrol and Kotler 1999; Day 1994; Slater and Narver 1995).

Demand Management

Demand management is the capability of an organization to synchronize two primary global supply chain functions: demand generation and supply. Demand is primarily the responsibility of

sales and marketing. In many companies, the sales organization is responsible for generating and maintaining demand from large end-use customers or from wholesale or retail partners. Marketing is responsible for generating and maintaining demand from end consumers. Supply is the responsibility of a number of functions, including manufacturing, procurement, logistics, related human resources, and finance. It is also the responsibility of the suppliers who provide raw materials, component parts, and packaging. The sales and operating plan (S&OP) process provides the “junction box” of demand management, where information can flow between the demand side and the supply side of a firm.

The sales forecast, a projection into the future of expected demand given a set of environmental assumptions, is the critical input to the S&OP process (Mentzer and Moon 2004). The sales forecast should originate on the demand side of the enterprise, since it encompasses the activities of the enterprise (i.e., sales and marketing) and entities of the global supply chain (i.e., demand side global supply chain partners) responsible for generating demand and with the best perspective on future demand. In addition to the sales forecast, which originates in the demand side of the company, another critical input to the S&OP process is a capacity plan. A capacity plan is a projection into the future of what supply capabilities will be given a set of environmental assumptions (Mentzer and Moon 2004). This input is provided by the supply side of the enterprise and the global supply chain and documents both long- and short-term supply capabilities. The process that occurs inside the S&OP process is the matching of future demand projections (the sales forecast) with future supply projections (the capacity plan).

The S&OP process creates two critical plans: the operational plan and the demand plan (Lapide 2002). The operational plan consists of manufacturing, procurement, distribution, finance, and related human resource plans. Operational plans include items such as monthly production schedules, extended contracts for raw materials with global supply chain partners, or even plans

to expand manufacturing capacity internally and/or with partners. The other critical plan that emerges from the S&OP process is the demand plan, where sales and marketing make plans about what should be sold and marketed, and when, given the supply capabilities of the firm and the integrated global supply chain. Demand plans may involve suppressing demand for products or services that are capacity constrained or shifting demand from low- to high-margin items. The role of demand management is dependent on the firm's position in the global supply chain. Any global supply chain has only one point of independent demand—or the amount of product demanded (by time and location) by the end-use customer of the global supply chain. The company in the global supply chain that directly serves this end-use customer experiences this independent demand. All subsequent companies in the global supply chain experience a demand that is tempered by the order fulfillment and purchasing policies of other companies in the global supply chain. This second type of global supply chain demand is called derived demand because it is demand that is derived from what other companies in the global supply chain do to meet their demand from their immediate customer (i.e., the company that orders from them) (Mentzer and Moon 2004). It is important to note that only one company in any given global supply chain is directly influenced by independent demand. The rest are influenced by derived demand. Equally important, the formal organizational hierarchy, coordination processes, information and communication systems, human resource systems, and measurement systems necessary to deal with derived demand are quite different from those of independent demand. Recognizing these differences can have a profound impact on integrated global supply chain costs and customer service levels.

Relationship Management

Relationship management covers the management of dynamic interactions between suppliers, customers, investors, government, media, community, and industry groups, recognizing the need

to understand the behavioral interpretations from the perspective of both parties to a relationship. It acknowledges that entities that have interacted for a long time may view their relationship very differently from those that have little experience with each other. Therefore, understanding relationships requires time-based assessments by both parties of dimensions that are critical to many relationships.

One dimension central to relationship management capability is the level of trust that exists between the entities in a relationship (Ganesan 1994). Through trust, each party gains a level of confidence that the other party will do what the former expects. This confidence is gained through the honesty and integrity of the parties who are involved in the relationship. Structural elements that affect organizational-level dimensions of trust influence the capability of one organization to meet the needs of the other through their offerings. Trust at this level implies that a firm has the organizational hierarchy in place and resources available and is capable of implementing these resources for the benefit of the relationship. For example, a firm's assignment of specific human or capital resources to a relationship can affect the other party's interpretation of that firm's willingness to pursue or continue the relationship. In other words, the commitment of resources to the relationship plays a major role in cultivating trust.

Communication or information sharing is another fundamental dimension of business relationships. Therefore, as relationship managers exchange information, this information provides cues to the other party as to what the relationship managers consider important to their organizations and the relationship. For relationship managers to react appropriately, they must be able to interpret the information and determine its value to their organizations.

Commitment to the relationship is a dimension that reflects the dependence that exists when one party does not entirely control all the conditions necessary for achievement of a desired outcome (Cadotte and Stern 1979; Emerson 1962). Three critical factors that affect the degree of perceived

dependence of one party on the other are the importance of the product or service exchanged, the extent to which each of the parties has discretion over the exchange, and the extent to which the parties have alternatives to the current relationship. Commitment to a relationship is also demonstrated by the commitment of resources to the relationship (Heide 1994). Therefore, longer-term relationships tend to be characterized by a willingness of both parties to commit a variety of different resources to a set of future transactions.

The measurement system used to assess the contribution to value of a relationship is another critical dimension of relationship management. One barrier to successful long-term relationships is the inability of multiple organizations to measure jointly created and shared value as well as to develop ways to allocate shared risk.

Resource Management

Resource management capability facilitates the development and management of human capital, information technology and knowledge, financial resources, and property. The complex configurations of an integrated global supply chain, often globally dispersed, provide access to resources such as cheap labor and raw materials, subsidized financing opportunities, and larger product markets. For global value chains, the resources of a company are subject to greater uncertainties and risks in the system. Harland, Brenchley, and Walker (2003) provide a comprehensive list of risks facing an organization: strategic risk, operations risk, supply risk, customer risk, asset impairment risk, competitive risk, reputation risk, financial risk, fiscal risk, regulatory risk, and legal risk. In particular, the risks faced by a global integrated global supply chain can be classified into macroeconomic risks associated with significant economic shifts in wage rates, interest rates, exchange rates, and prices; policy risks associated with the unexpected actions of national governments; competitive risks associated with uncertainty about competitor activities in foreign markets; resource risks associated with unanticipated changes in resource

requirements or availability in foreign markets (Ghoshal 1987); and global supply chain supply and demand risks.

The realization of these risks could lead to outcomes such as the inability of the focal firm to meet customer demand within anticipated costs, threats to customer life and safety, impairment of a firm's internal ability to produce goods and services, inadequate quality of finished goods, decreased profitability of the company, chaos in the system (such as the bullwhip effect), and lower likelihood of a customer placing an order with the organization (Simons 1999; Wilding 1998; Zsidisin et al. 2004). To prevent or reduce the potential damages and losses to resources, resource management capability must provide the ability to manage risks.

Risk management is the process of minimizing the potential damage to the available resources and mitigating the consequences if a risk is realized. Risk management processes include identifying risks and their sources, evaluating risks, selecting and implementing risk management strategies (reducing the probabilities of adverse occurrences), and developing risk mitigation strategies (reducing the impact of adverse occurrences). Thus, the organizational hierarchies, coordination processes, and information and communications, human resource, and measurement systems necessary to implement risk management techniques are central to resource management capability.

Performance Implications

SSP portrays performance as resulting from the fit of structure to the chosen strategy of the firm. Strategic determination is equated with establishing goals, whereas performance is the evaluation of how well the goals are met (Chandler 1962; Hofer and Schendel 1978; Mentzer and Konrad 1991). Atkinson, Waterhouse, and Wells (1997) define three roles for performance measurement: (1) *coordination*, which focuses decision making on the most important objectives; (2)

monitoring, or the actual measurement and reporting of performance; and (3) *diagnostic*, which is used to evaluate performance, identify the improvements needed, and tie the nonfinancial metrics to financial measurement criteria and goals. Goals established in strategy formulation are eventually translated into performance measures that are evaluated periodically and ultimately drive adjustments to goals and strategies. Performance, therefore, is the measurable outcome of strategy execution and structural implementation. Thus, the shared goals identified in global supply chain strategy formulation are used to derive performance measures for the global supply chain. Failure to link performance to strategy may lead to the inability of the global supply chain to achieve goals and meet customer expectations and will not provide the vision necessary to influence individual goal-directed behaviors.

Mentzer and Konrad (1991) break traditional performance down into measures of efficiency and effectiveness and state that both elements are necessary. Efficiency measures how well the resources expended were utilized, whereas effectiveness assesses the degree to which goals are accomplished. Unfortunately, assessment of overall global supply chain performance has been limited as the metrics employed have often been measures of internal operations as opposed to measures of GSCMS. Lambert and Pohlen (2001) proposed an approach to GSCMS performance measurement that assesses the EVA of combined global supply chain effort to demonstrate that the benefits of GSCMS occur across the extended firms. Specifically, the Lambert and Pohlen model demonstrates that overall system value benefits each firm in the global supply chain by improving shareholder value in one or more distinct areas: revenue enhancement, operating expense reduction, and working capital and fixed capital efficiency.

Overall revenue enhancement is accrued by improving the effectiveness of operations, for example, availability of products and services that prove most important to the global supply chain’s revenue and profit generation, as well as by creating proper information flows and

metrics to incent global supply chain firms to sell these products and services. Operating expense reduction is realized by streamlining processes, reducing redundancy and duplication, and improving productivity and operating asset utilization. Working capital efficiency translates to inventory elimination. Improving flow-through and inventory turnover by enhancing forecast accuracy, streamlining flow processes, and speeding up cycle times serves to reduce cycle inventory considerably and improve the global supply chain's ability to respond to actual demand without huge investment in pipeline inventory. Fixed asset efficiency results indirectly from reductions in operating expense and working capital. Specifically, global supply chain work performed more efficiently with operating assets and inventory utilized with higher productivity enables firms to reduce facilities, equipment, and labor invested (Christopher and Ryals 1999).

Integration of GSCMS into Firm Strategy

Managers involved in strategic decision making should find this framework useful as a means of clarifying the nature of GSCMS and how it fits within and across organizations. In particular, managers may assess critical aspects of the global market and internal enterprise characteristics to determine the GSCMS level their organization should seek and the degree of alignment global supply chain partners should have with a similar GSCMS perspective. It also provides guidance on how to employ structural elements within the five core GSCMS capabilities to achieve global supply chain performance improvement.

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