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## SUPPLY CHAIN MANAGEMENT AND THE ROMANIAN TRANSITION

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### Abstract

Supply Chain Management (SCM), defined here as the construction of productive systems spanning over organizational borders with suppliers and customers and integrated via human-based and information technology systems to satisfy final customer requirements, is introduced as a key concept to accelerate Romania's economic transition as it approaches EU membership, as well as to develop a modern supplier network. We introduce SCM from a system perspective along three broad areas: input, operations, output and system integration activities. We close by introducing constraints to SCM implementation in Romania. The first major constraint involves a lack of appropriate physical and human capital. Modernization of antiquated equipment and training employees in modern operations practices are prime requisites. The second major constraint, and perhaps the more difficult to change, deals with a lack of social capital among Romanian firms and adapting to appropriate managerial and worker values and attitudes.

### Keywords

- Supply Chain Management;
- Social Capital;
- Transition Economy;
- Economic Development .

### Rezumat

Managementul lanțului de oferta (SCM) definit aici ca o construcție a sistemelor productive ce depășesc granițele organizatorice cu furnizori și clienți și integrate în sisteme bazate pe capacitatea umană și pe tehnicile de informare pentru a satisface cerințele consumatorului, este introdus ca un concept cheie pentru a accelera tranziția economică a României pe măsura ce se apropie de integrarea în U.E., cât și pentru a dezvolta o relație modernă de furnizori. Introducem SCM dintr-o perspectivă a sistemului bazat pe trei domenii largi: intrare; operații; venit și activități de integrare a sistemului. Prezentăm de asemenea constrângerile de implementare a MLO în România. Prima constrângere majoră implică lipsa capitalului fizic și uman adecvat. Modernizarea aparatului vechi și instruirea angajaților în practici moderne constituie prime necesități. O a doua constrângere majoră și poate cea mai grea se referă la lipsa capitalului pentru firmele din România și adaptarea lor la un management adecvat, la dobândirea unor noi atitudini și valori ale angajaților.

### Cuvinte cheie

- Managementul lanțului de oferta;
- Capital social;
- Economie de tranziție;
- Dezvoltare economică.

## 1. Introduction

The period between 1990 and 2007 will be considered a historic period for Romania as it transitions from a command to a market economy and joins the European Union. A major portion of this transition involves the reorientation of Romania's supply chain structure. The structure inherited from the socialist period (1947 to 1989) was state owned, centrally planned, inefficient, provided poor choice and quality, and service was highly unresponsive. While the centrally planned economic systems were in their last decade in the 1980s, firms in Japan, Western Europe and the United States were experimenting with new methods of supply chain coordination within a capitalistic framework. Nishiguchi (1994), and Womack, Jones, and Roos (1990) identified the transition from adversarial supplier relations to supply chain management (SCM) practices in the industrialized nations as a major factor of continued organizational competitiveness. SCM was found to provide lower costs, shorter development and production cycles, higher quality, and other inter-organizational benefits (Ansari & Modarress, 1990).

Hirschman (1958), a few decades earlier, was prescient to theorize that cooperative supply chains would support a nation's or region's economic development by forging links between suppliers and buyers. As an example, the automotive parts industry uses a large number of suppliers for all the components and materials used to assemble an automobile. This industry serves as a backward linkage industry, in which the end assembler purchases subassemblies from first tier suppliers. The first tier suppliers, in turn, buy material and components from second tier suppliers. The backward linkage industry integrates the small and medium

enterprises into a supply chain to promote regional development. Recent empirical data suggests that SCM has helped to lower inflation, reduce economic volatility, and strengthen productivity, and worker earnings in the United States (Basu and Siems, 2004).

Many of the businesses in the transition societies, such as Romania, have the opportunity to transition from the vestiges of a state managed supply chain, bypass the older market adversarial relations model, and adopt the newer SCM model to vastly accelerate the transition period. In this paper we will describe a model of SCM and provide a discussion of constraints for future implementation in Romania.

## 2. What is Supply Chain Management?

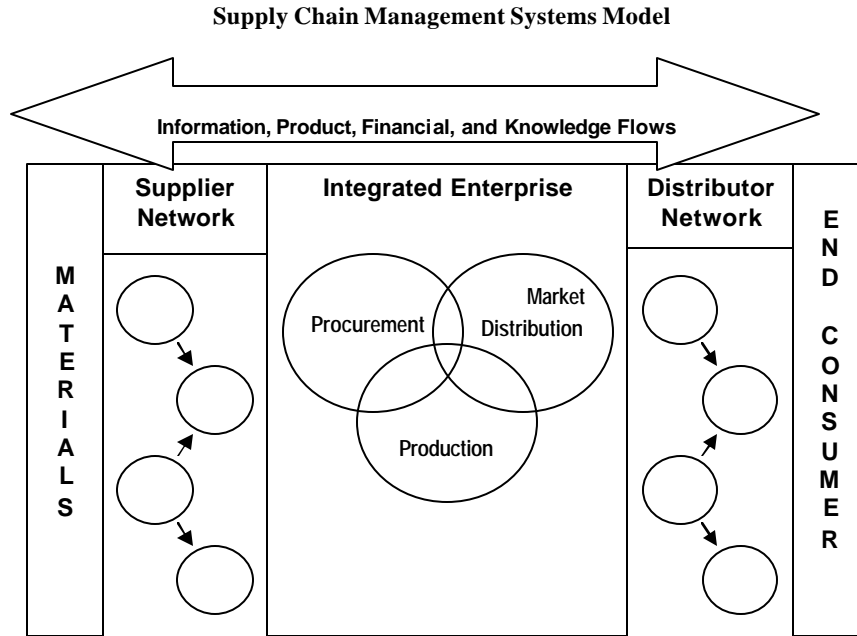
Many professional organizations, such as the International Federation of Purchasing and Materials Management (IFPMM) and the Institute for Supply Management (ISM), following the lead of innovative leaders in their respective companies, have developed a variety of definitions for this new and emerging phenomenon. We will define SCM as "the design and management of seamless, value-added processes across organizational boundaries to meet the real needs of the end customer. The development and integration of people and technological resources are critical to successful supply chain integration ([www.napm.org](http://www.napm.org))."

Under this definition, organizations in the supply chain learn to adapt to new situations found in their external environments to provide linking processes that join with other organizations to the point that they behave as if a unique organization with parallel goals. This new cooperative approach reduces waste and duplicated effort among organizations.

A model of SCM is presented in Figure 1. This model is based on a systems model that extends coordination beyond a single organization, independent of other firms that provide input and output functions. In the older traditional models of organizational systems, suppliers and customers were listed as part of the external task environment. In the SCM model, on the other hand, they are included as part of a

larger system view that incorporates suppliers and customers into a unified structure that is often referred to as a virtual organization. A virtual organization is composed of several organizations that operate under the same general goals, communicate openly in bi-directional vertical and horizontal flows, share resources, and are highly dependent of each other.

Figure no 1.



The elements making up Supply Chain Management consist of:

**Input Activities**

Purchasing serves as the principal input activity along the supply chain. In the traditional model, purchasing management was often considered a low level clerical task in which selection decisions were based largely on cost. Expediting suppliers to hurry the delivery, monitoring incoming quality, and intervening in the payment of suppliers

were the principal forms of management and these tended toward adversarial control rather than cooperative relationships.

Under SCM, purchasing assumes a more strategic and complex role in the organization and the purchasing function often operates beneath a Director or VP of Purchasing who is responsible for forecasting, analysis, planning, and coordination of purchasing activities in close consultation with other functional

areas in the buying and supplying organizations.

Supplier Partnerships (also known as Supplier Alliances) further elevate the importance of the purchasing activity. Supplier partnerships are long term, cooperative, and trust-based relationships with key suppliers. The relationships are used to acquire vital resources and provide benefits to both organizations beyond the traditional dimensions of cost and quality and now include improved delivery, timing, flexibility and access to the supplier's technology. Supplier partnerships employ specific supplier management practices depending on organizational needs. These practices generally consist of supplier development, early supplier involvement, supplier certification, and total cost management practices (Glaser-Segura, 1998). If, for example, a supplier's product quality requires improvement, a supplier development program would most likely involve a quality assurance team that would work closely with the supplier to improve the quality of their products. These supplier management practices require a high level of trust and lead to benefits for both organizations. The changeover to the new supplier management practices, however, requires a rethinking of staffing in the purchasing function. The structure now becomes much more project oriented with multidisciplinary teams drawn from accounting, engineering, and other areas.

#### **Operations Activities**

SCM operations activities incorporate concepts of continuous monitoring and improvement of balanced and efficient production and high product and service quality. In the traditional organizational mode of supply management, on the other hand, continuous improvement of operations activities was a low priority of organizational strategy. The managerial

mantra could be described as "If it isn't broken, do not fix it." In the SCM approach to operations, Just-in-Time (JIT) management serves to continuously improve the productive system to achieve greater and more efficient product and service flow rates. JIT employs conceptual tools and can be used by most organizations, including service companies. These conceptual tools consist largely of *kanban*, reduction of lot sizes, just-in-time scheduling, and reduction of setup times (Flynn et al., 1995).

In addition to JIT, SCM depends on the continuous improvement of product and service quality. Total quality management (TQM) provides the philosophical foundation and tools to improve quality along the supply chain. TQM is comprised basically of focus on end customers, process quality management, and design for quality practices. JIT and TQM, also require that management change the way they deal with employees and the workplace. These practices are referred to as common infrastructure practices (CIP) and are comprised of information feedback, management support, plant environment, and workforce management (Flynn et al., 1995).

Supply chain management also depends a great deal on better demand management to provide accurate forecasts of requirements for its products and services; to conduct high level planning to determine material, human, and other needed resources; and to serve as an input to scheduling and capacity decisions. Forecasting, as a central element to demand management, consists of both quantitative and qualitative forecasting methodologies. These methodologies provide inputs for management to make sales and production decisions along the supply chain and will result in reduced bullwhip effect. The bullwhip effect refers to the increased concentration of safety

stock inventory all along the supply chain, which increases inventory costs and reduces organizational responsiveness (Wisner, Leong, & Tan, 2005).

Aggregate planning and capacity management are complementary activities that serve to craft a plan to coordinate productive assets and to balance the plan with available capacity within the organization and among supply chain members. Aggregate planning relies on long term demand management and forecasting to create realistic production plans. These plans, in turn, are further developed into more specific mid term and short term plans. Aggregate planning is used in both production and service organizations and shared along with suppliers and customers along the supply chain. Plans are revised and balanced at each planning horizon (long, middle, and short term) to further match available capacity. Various management practices are used to match plans to available capacity in the short and mid term. Long term capacity decisions, on the other hand, generally require capital outlays, which often include facility location decisions (Russell & Taylor, 2005).

Facility location analysis is used to move productive facilities to places that provide lower cost inputs or when it makes sense to locate close to either suppliers or to customers. The decision to locate facilities is usually based on a combination of quantitative distance tools, weighted factors of production tables, and management judgment (Petroni, 2000).

#### **Output Activities**

Supply chain management relies a great deal on two major activities: 1) proactive contact with consumers and 2) distribution of products. The first activity has been facilitated by low cost electronic mediums, such as the Internet, for reaching customers at almost any place of the globe and at any time. Customer contact may be simple, such as keeping a

website for information purposes, or complex, such as tracking and managing products in transit. These customer contact tools are referred to as Customer Relationship Management (CRM) software that performs three principal functions: 1) marketing, 2) Sales, and 3) Service (Ross, 2005). SCM output activities also depend on the use of a multitude of transportation options which include company owned and as well as contracted transportation, warehousing, and specialized distribution services. These transportation operations also depend on multi-modal transportation processes which employ standardized containers and allow the integration of trucks, trains, and ships (Helms & Dileepan, 2005). Network design, another development in supply chain transportation, involves the deliberate analysis and design of the structure of a supply chain. The network design process involves transportation and facilities models and decision tools to create optimum distribution systems (Zographos & Giannouli, 2001). Finally, in the distribution of output items along the supply chain, service response logistics (also referred to as reverse logistics) deals with the travel of products in the supply chain for products that are returned for repair, destruction, and or specialized disposal (Wisner, Leong, & Tan, 2005).

#### **System Integration**

Supply chain integration requires measurement and coordination of all processes across organizational boundaries. Under the traditional unlinked organizational approach, productivity, quality, accounting and financial measures were used to determine if the organization was meeting its goals, independent of the economic and organizational impact on suppliers and customers. Under the SCM approach, performance measurement involves assessments that reach beyond organizational boundaries. Enterprise

Resource Planning (ERP) serves as the principal information technology used to coordinate and measure internal functions, such as accounting, HR and production, with external stakeholders, such as suppliers, logistics providers and customers. ERP systems now often consist of multi-location and multifunctional information systems that link the organizations with suppliers and customers (Chuang, & Shaw, 2005). The use of ERP systems also provides a means for gathering data for performance measurement. These performance measurement systems, based on large processing systems and using data from multiple databases can provide a more detailed view of performance (Chen, & Paulraj, 2004).

Goals and incentives along the supply chain must also be integrated, information must be accurate, process and quality improvements should be coordinated, and procedures that stabilize supply chain members against shocks should be observed without resorting to opportunistic and self-defeating short term behaviors that benefit one firm or portion of the supply chain. SCM integration, though, cannot be accomplished by force and requires mutual voluntary cooperation (Wisner, Leong, & Tan, 2005). For mutual voluntary cooperation SCM depends on social capital. Social capital is an intangible social construct that has no liquid value, but it permits value-added transaction activities that, in its absence, are impossible (Coleman, 1990). SCM across national borders requires social capital to a greater degree than when working in a one-language, monoculture setting.

### **3. Constraints of Implementing Supply Chain Management in Romania**

SCM implementation in Romania is constrained by two major factors. These

constraints involve 1) poor physical and human capital and 2) a limited view of inter-organizational structure. The physical capital constraints consist of technologies that were not updated during the later part of the Ceausescu era and the early transition of the 1990s. Some of the privatized firms, particularly those owned by managers and workers, were not able to acquire new technologies and were forced to cut back on research and development. The manager-worker owned privatized firms have not prospered to a great degree and some have gone bankrupt. Privatized firms with access to funds for capital improvements, usually from foreign sources of ownership, to the contrary, experienced growth (Valsan, 2001). The loss of bankrupt firms has deteriorated Romania's ability to maintain certain national supply chains.

In addition to physical capital investment, firms will need to improve their human capital. Human capital investment will need to involve both managers and workers. For the first of these two groups, managerial learning will involve new methods of acquiring knowledge, and assimilating new values and systems so that managers can develop organizational processes appropriate to their new needs (Clark & Geppert, 2002). The current condition of top-down mechanistic management should give way to the notion of respect and empowerment of workers. Moreover, managerial learning should involve practical solutions and avoid the older theoretical education approaches (Bedward, Jankowicz, & Rexworthy, 2003). In addition to managers, employees must also upgrade their attitudes and skills. The mentalities inherited from state organizations must give way to entrepreneurial and problem solving behaviors. The employees should see their fates tied to the performance of the firm and the supply chain. The new skills must incorporate continuous

improvement of processes and quality of products and services.

Supply Chain Management also requires new views of the organization and its external and internal stakeholders. From an external view, managers as well as employees should learn to embrace cooperation across organizational boundaries. It is not only managers, in the role of boundary spanners, who communicate with outsiders. The SCM approach will involve managers and workers from a variety of levels communicating with suppliers and customers at a variety of levels in their respective organizations. As organizations cooperate with other supply chain members they will find that they must develop greater levels of social capital or trust (Coleman, 1990).

From within the organization, managers and employees must learn to break down internal boundaries. SCM spans across the functional areas of the organization and reaches out to other organizations. It includes purchasing activities, materials management, transportation, warehousing, operations management (production and services), information technology, customer service, and coordinates with finance, marketing, accounting, and human resource management. The SCM paradigm changes the way companies are organized for more fluid-like flows of materials, people, information, finances, and other resources across functional areas beyond the domain of a single organization (Wisner, Leong, & Tan, 2005). In some organizations, the reorientation requires structural change in which all of these functions report to a common manager and organizational culture changes to more cooperative and participative behaviors (Moss-Kanter, 1994).

In fact, not only is SCM a new paradigm for businesses, but also for the academic institutions that instruct future

managers about this new model. The academic organizations that attempt to teach SCM find that they must break down barriers between the various academic business disciplines. We now find, for example, that the marketing and management departments must plan curriculum, decide who will teach which courses, and share common tasks. In other words, academic institutions must be able to practice what they preach.

The implementation of SCM in Romania will require organizational change and we suggest the approach suggested by Moss-Kanter (1994) called the "Eight I's that Create We's." These eight characteristics consist of:

? **Individual Excellence** - Both sides of an alliance are strong in their own right and contribute something to the relationship. Their motives are positive and are aimed at gaining new market opportunities.

? **Interdependence** - The partners depend on each other and cannot reach their common objective alone. This is also referred to as a superordinating goal.

? **Investment** - The partners of an alliance invest in each other as proof that they believe in the longevity and success of the other. The investment can be in financial and other tangible terms as well as intangible, such as training and providing business solutions.

? **Information** - To make their partnership work, communication must be frequent, rich in content, strategic and tactical (at all levels of both organizations), and work to solve problems and reach goals and opportunities.

? **Integration** - The alliance members develop linkages and methods of operating. In many organizations this is often expressed as information technology and distribution systems that connect each other more efficiently. The integration can



also be expressed in intangible manners such as creating joint taskforces

? **Institutionalization** - The relationship is given a formal status. The relationship is announced to the industrial community and cannot be broken easily by caprice.

? **Integrity** - The partners in the alliance along the supply chain behave in

honorable manners that engender trust. The intent is on growth and maintenance of the relationship.

In short, the SCM paradigm provides a wide array of benefits but also requires revolutionary changes in the way organizations conduct relationships and transactions.

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