

## **SUPPLY CHAIN MANAGEMENT AND THE ROMANIAN TRANSITION**

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**Abstract.** *The purpose of this paper is to perform a systemic analysis of the Supply Chain Management, and to show what are the essential aspects of such a complex process. Actually, it is an integral perspective of intra- and interorganizational management activities aiming at the optimization of all important tangible and intangible fluxes and forces acting in a multifield framework. In the same time, we are looking at the Romanian transition and show how such a new perspective can be applied to the business environment. The analysis is challenging, since Romania is in a deep change process from a centrally planned economy toward a free market economy.*

**Keywords:** management, supply chain management, system analysis, transition economy.

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## **1. Introduction**

Romania is entering a historic period as it transitions from a command to a market economy and joins the European Union. A major portion of this transition will involve the reorientation of Romania's supply chain structure. The supply chain 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. Meanwhile in the 1980s and the 1990s, many manufacturing and service firms in Japan, Western Europe and the United States were experimenting with new methods of supply chain management (SCM) within a market framework. Nishiguchi (1994) and Womack, Jones, and Roos (1990) identified the change from adversarial supplier relations to voluntary cooperative SCM practices in the industrialized nations as a major factor of continued organizational competitiveness. Adversarial relations refers to the way that a buyer and supplier would often work against each other under conditions of distrust and displays of power. These researchers found that SCM provided lower costs, shorter development and production cycles, higher quality, and other interorganizational benefits. Recent evidence suggests that SCM in the U.S. has helped lower inflation, reduce economic volatility, and strengthen productivity, and worker earnings in the United States. In short, many of the macroeconomic benefits of the U.S. economy in recent years can be partially attributable to SCM (Basu and Siems, 2004).

If SCM works in the established industrialized nations, it should be helpful in the transition economies as well. Romania should have the opportunity to switch from the remains 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 opening chapter we will describe a model of SCM and provide a discussion of constraints for future implementation in Romania.

## **2. What is Supply Chain Management?**

What is supply chain management (SCM)? This is an interesting question because the field is new and SCM is still an evolving concept. Early discussions of SCM attempted to fit it into existing organizational functions such as purchasing, logistics, or operations management. These early frameworks limited the emerging domain. While most managers knew that it was a change from the old model, few could see the big picture of what it would become. The SCM model spreads over functional areas and does not lend it self to earlier categories. According to Larson and Halldorsson (2002) the traditional perspectives on SCM limited its scope and a redefinition of the emerging field was needed.

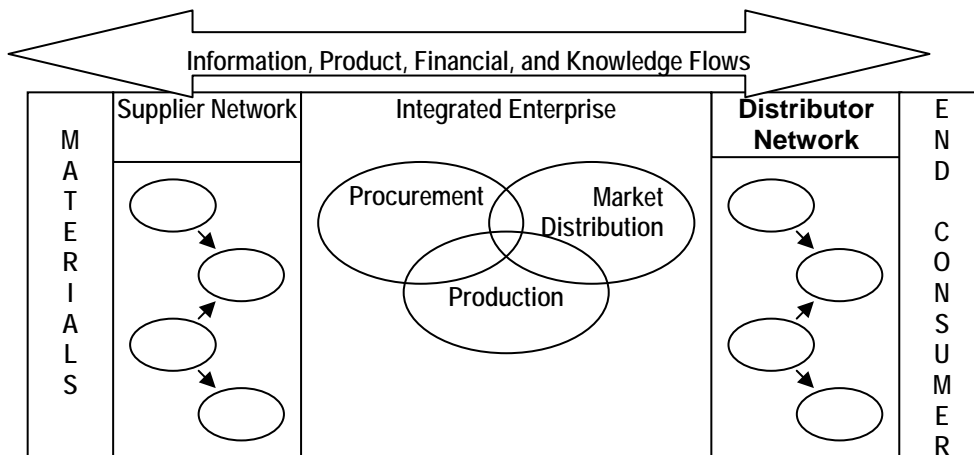
Many professional organizations, such as the International Federation of Purchasing and Materials Management (IFPMM) and the Institute for Supply Management (ISM), following the lead of innovative managers in their respective companies and countries who have experimented and developed SCM, have come up with a variety of definitions of this new discipline. We will adopt the definition as

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currently proposed by the Institute for Supply Management ([www.napm.org](http://www.napm.org)) for our studies. They define Supply Chain Management 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*”.

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 often coordinate their activities as if they were a unique or single cooperative organization with the same goals. This new cooperative approach reduces costs, inefficiency and duplicated effort among organizations. As mentioned above, SCM is no longer a limited domain or a narrow functional area. Supply Chain Management cuts across the functional areas of the organization. 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 to create more fluid-like flows of materials, people, information, finances, and other resources across functional areas beyond the domain of a single organization.

A model of SCM is presented in Figure 1. In this model the reader will notice that SCM is an industrial ‘ecosystem’ that extends beyond a single organization, independent of the other firms that either provide inputs or receive the output products and services. The SCM model is based on a more inclusive systems view that incorporate 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 and share resources, and are interdependent of each other to the point that they act as a single firm or organization. In the older traditional model of organizational theory, suppliers and customers were listed as part of the competitive external task environment.



**Figure 1. The structure of a SCM**

### **3. A Systems Description of SCM**

#### **3.1. Input activities**

The elements of SCM are easily described in systems theory terms. Purchasing management serves as the input activity along the supply chain and assumes a more strategic and complex role in the organization. Purchasing often operates under the direction of 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. In the traditional model, conversely, purchasing 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.

Supplier Partnerships 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 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.

#### **3.2. Operations Activities**

The operations activities of SCM incorporate concepts of continuous improvement of balanced and efficient production along with high product and service quality. 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 the traditional model of supply management, on the other hand,

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continuous improvement of operations activities was a low priority. The managerial mantra could be described as „If it isn't broken, do not fix it.” Plants were often disorganized and organizations wasted large sums of resources, such as employee work time, scrap, and back logged deliveries.

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). In the traditional model, poor incoming quality was the norm as well as poorly designed products and processes. The traditional approach was based on an attitude of quality checking rather than proactive quality process management conducted by the employees themselves. SCM also depends a great deal on better demand management. Demand management provides forecasts to better determine the market's product and service needs. Having this information allows the firms in the supply chain to jointly coordinate high level planning to determine material, human, and other needed resources. Furthermore, the forecast serves 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 allow firms to make sales and production decisions along the supply chain to help reduce the 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 create a plan to coordinate productive assets and to balance it 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. Short term capacity management deals with the scheduling of equipment and workers to satisfy production from a week up to several months. Long term capacity decisions, in contrast, generally require capital outlays, and 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 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). The whole field of SCM is becoming more complex as parts and materials are purchased

from a wide variety of locations and the production decisions are no longer made in one single location. For example, the Dacia Logan will be made from parts made in several different countries. Dacia is working with suppliers to decide where to make the parts.

### 3.3. Output Activities

SCM requires a great deal of proactive distribution of output products with middle and final consumers who use these output products. Customers not only want good quality low cost products and services. They also rely on the good timeliness of delivery. It should not be delivered too soon or too late. JIT production requires that products be delivered exactly as they are needed. Often, the buyer requires that the transportation company provide added services, including warehousing and some assembly. Close coordination of delivery is a requirement in a SCM environment. The availability of a multitude of transportation options provides organizations with many options for distribution which includes in-house owned and as well as contracted transportation, warehousing, and specialized distribution services. Transportation has evolved greatly and now includes standardized containers which integrate trucks, trains, and ships. The containers are the building blocks of multi-modal transportation. A box sits on a pallet which is loaded into a container and the container can be loaded by crane on a ship, or onto a flat bed trailer, or flat rail car. The box-in-a-container on a transportation mode is one of the great success stories of multi-modal transportation.

Transportation has also benefited from information technology. Technology, such as scanning barcodes and the newer RFID tags, will push transportation further ahead and speed up deliveries and reduce errors. The design of supply chain networks is no longer left to chance or simply as a result of a historical decision. Now firms can decide what arrangement of supply chain nodes (i.e., suppliers, routes, warehouses) best meets customer needs. Network design is the deliberate analysis and design of the structure of a supply chain. The network design process involves transportation and facilities models and decision tools in the design of the optimum distribution system. With the advent of low cost electronic mediums for reaching customers at almost any place of the globe and at any time, such as the Internet, it has become easier and cheaper for members of a supply chain to maintain customer relationships that keep track of what customers want.

The electronic mediums may use sophisticated tools involving a variety of Customer Relationship Management (CRM) software packages that provides customized reports about consumer preferences or it may involve non-repetitive project based and market studies. They may be as simple as keeping a website for information purposes or they may involve more complex systems to track returned merchandise. DHL, for example allows customers to track the location and delivery time of a package at any point. Customers simply have to type the tracking number in the company web site and a search engine on DHL's database returns the location and disposition of the package. Finally, in the distribution of output items along the supply

chain, service response logistics (also referred to as reverse logistics) deals with the reverse travel of products in the supply chain for products that are to be returned for repair, destruction, and or specialized disposal. For example, a final customer usually has no use for used tires when they purchase new car tires and reverse logistics distribution systems allow for the disposal of tires to a recycling plant paid for by a small fee to the customer.

### **3.4. Integration**

Supply chain integration requires measurement and coordination of all performance across organizational boundaries. 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 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). Under the traditional unlinked organizational approach, on the other hand, productivity, quality, accounting and financial measures were used separately to determine if the organization was meeting its goals, independent of the economic and organizational impact on suppliers and customers. The independent measurements often led to sub optimal coordination of the organizations processes.

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 over another.

SCM integration, though, cannot be accomplished by force and requires mutual voluntary cooperation (Wisner, Leong, & Tan, 2005). 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). Firms that plan on taking full advantage of SCM must create trust at levels of their organization and with the organizations they buy from or supply to. Furthermore, as SCM travels across national borders, organizations must depend on social capital to a greater degree than when working in a one-language, monoculture environment.

Finally, SCM leads to the creation of large virtual organizations that requires newer forms of performance measurement. Under the traditional organizational approach productivity, quality, accounting and financial measures were used to determine if the organization was meeting its stated goals. Under the SCM approach,

organizational measurement involves measures that reach beyond organizational boundaries. The use of ERP systems also provides a vehicle for gathering data for performance measurement. These performance measurement systems, based on powerful processing systems using data from multiple databases can provide a more detailed view of performance.

### 4. SCM: A New Approach to Management

Supply Chain Management requires a new approach to management. Old style management will simply not be enough. In fact, old styles get in the way of implementing SCM. Rosabeth Moss-Kanter (1994) provided a list of characteristics that firms must adopt in the way they manage SCM. She calls these the „Eight I’s that Creat 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 can not 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 ad maintenance of the relationship.

## 5. A Practical and Successful Application of SCM: Dell

From an applied approach, Dell Computers shows how they applied SCM in their supply chain. Michael Dell, the founder of this organization, refers to the Dell Computer SCM system as *Virtual Integration*. His company was founded in his dorm room while he studied at the University of Texas in Austin. His company now has production in the U.S, and many other countries. The benefits of virtual integration come from working with suppliers in a supply chain of complementary companies. For one thing, Dell Computers buys many of its activities or services. For example, after-sales computer service personnel do not directly work for Dell Computers. The 10,000 dedicated service technicians in the field are actually employed by another company that sells their services to Dell Computers. Michael Dell's wanted to create the most value for Dell Computers to pass on to its customers. Another aspect of Dell's SCM practices concerns the sharing of information with suppliers and customers in real-time. Dell Computers informs suppliers exactly about its production requirements through an integrated ERP system. Information is shared freely with suppliers which speeds up cycle-time to get products to market. The speed-up creates value for all organizations in the supply chain.

One of the biggest challenges to Dell's SCM operations is changing attitudes and behaviors among suppliers. Suppliers must be convinced that they should not do business in the old traditional manner of keeping a large amount of inventory on hand. The goal is to emphasize a relationship that allows for a more fluid movement of inventory. According to Dell, assets, such as inventory and accounts receivables create risk for the company. In the electronics industry, some parts become obsolete quickly and lose their value. CPU chips, for example, are often close to obsolete a year after manufacture. Slow moving and sizable accounts receivables, as is usual in all organizations, represent a lost opportunity. The funds in accounts receivables are not liquid until they are actually paid. Accounts receivables may even run the risk of devalued currency, when currencies fluctuate rapidly. Dell must communicate the benefits of SCM to change attitudes and behaviors.

Suppliers play an important role in moving assets at a faster pace. The key to working with suppliers at a fast pace of work is to provide accurate, rich, and timely information. Dell monitors the performance information very closely. For example, quality performance data is one of the pieces of information tracked. If a supplier provides a poor quality part, Dell asks the supplier to quickly diagnose the problem and fix it. In addition to external suppliers, Dell employees are also hired on the basis of adapting to change. Dell's goal is to remain ahead of the competition to create and shape the future of their business rather than react to changes that are more favorable to competitors.

Forecasting and managing demand is also a critical component of Dell's business. Sales and production functions freely share these forecasts. Dell Computers ERP system is connected with customers so that they know the status of orders and post delivery service. Often, Dell knows more about a customer's orders than does the

customer. Dell is aware of their intermediate role as both a buyer and as a supplier. In addition to its input activities, Dell also acts as a supplier to other organizations. For example, Dell supplies over 100,000 personal computers to Boeing. Dell has 30 people who work directly at the Boeing plant sites and they work alongside Boeing employees to the degree that they are often indistinguishable from each other. Dell's employees serve as its eyes and ears to better anticipate and serve customer needs. Dell also spends a great deal of time in personal meetings with Boeing and other customers at various levels of management to coordinate the relationships. This is in addition to information that is shared in Customer Relationship Management systems dedicated to their customers.

### 6. Benefits of Supply Chain Management

Supply chain management provides a synergistic group of benefits to intermediate and final customers. While it is the final customer that initiates the request for better product and service benefits, the intermediary producers also benefit. In a sense, why create and provide higher levels of performance if there are no rewards? The benefits earned by organizational members along the supply chain are listed below.

**Lower material costs.** Cost savings from supplier development programs as well as from process improvement and cost reduction projects contribute to lower material costs from suppliers to buyers all along the supply chain and group members see the need for passing cost savings along.

**Higher incoming quality.** Higher incoming quality materials and parts are transferred directly from the supplier directly into the buyer's production. Higher incoming quality also results in a cost savings since firms have to invest in fewer or none quality inspectors to check for suspected quality problems from quality certified suppliers.

**Reduced design time.** Early supplier involvement, which gives suppliers a closer role in the design process, allows a firm to reduce design time. Buyers understand that they must change their approach from dictating exact design plans into providing general design parameters from which suppliers provide optimal and innovative solutions at a sooner point in the design process. In addition, the supplier can spot design mistakes that the buying company might not catch and thus reduce the redesign time.

**Faster delivery cycle times.** Dedicated and specialized supply from a smaller supply base can provide faster delivery to buyers. As suppliers reduce set-up times and lot size requirements, they begin to provide smaller and more frequent deliveries which support just-in-time production schedules. Often, if the product and industry warrant such an arrangement, suppliers will locate their production close to the buyer, which further reduces delivery cycle time.

**Increased administrative efficiency.** As delivery times, product quality and other benefits become more predictable and operations become better balanced, there

is less need for managers to spend time putting out fires or unanticipated problems. The cycle of reactive management changes to a cycle of preventive and proactive management. Balanced organizations are much easier and cheaper to manage and create less tension for managers and workers, alike.

**Reduced inventory capital requirements.** Problems in the productive plant, such as high absenteeism, bad quality, long set-up times, inexact deliveries and other problems, require high levels of safety stock inventory to avoid stock-outs. As managers and workers solve the internal plant problems using JIT and other process improvement practices, they are able to reduce large amounts of safety stock, which incur large opportunity costs. The capital invested in inventory could have been used in some other way to earn a higher rate of return. In fact, materials often lose money when they stay in the productive plant's inventory.

In the past, the benefits discussed above were often considered mutually exclusive. That is, if an organization attempted one benefit, such as low cost, it most likely could not also attempt to compete on high quality or faster delivery. Interestingly, the quality philosophies of Joseph Duran and W. Edwards Deming showed us that high quality and low cost were compatible. More recent evidence from companies, such as Dell Computers, shows us that the other benefits can be also be attained together. There is no need for a trade one benefit for another.

## **7. The Origins of Supply Chain Management**

Toyota is credited with first developing SCM. Richard Schonberg (1982) first wrote for a western audience about the manufacturing miracle that was occurring in Japan. He was amazed at the simplicity of the new model he found there. He wrote about this symbiotic group of practices used at Toyota and other Japanese companies in his classic text *Japanese manufacturing techniques: Nine hidden lessons in simplicity*. These practices were developed to reduce waste in the production system and increase product quality. A short timeline of the history of these practices are included in the Table 1 below. The practices evolved first at the shop floor level and were concerned with the systematic improvement of productivity and quality within the organization's boundaries. At a later stage, the system of practices was extended beyond the boundaries to include both suppliers and customers.

Finally, by the late 1970s, the practices were written in manuals and were implemented throughout Toyota and to suppliers and were formally named the Toyota system. In addition to the performance benefits provided by SCM as seen above, there are other reasons that make it important. First, the nature of business in the industrialized nations has changed drastically. Consumers in the industrialized nations no longer are motivated by scarcity. In fact, scarcity is almost a non-existent problem. Consumers are constantly raising the level of expectations of what they want and when they want it and always lower prices. As an example, Wal-Mart keeps over 100,000 different stock keeping units on the shelves of any one of its stores in the United States and in the other countries where they operate.

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Supply chain management facilitates the availability of larger numbers of products at quicker rates and at lower costs for customers. Suppliers from other parts of the world, through faster modes of transportation and more closely coordinated communication systems, will be integrated in the globalized supply chains to a greater degree. As experienced before 1990, manufacturers from Romania and from other transition economies provided a limited number of products to their own citizens within the borders of the counties allied to the former Soviet Union. Now, these manufacturers are beginning to join the supply chains from the European Union, the United States, and Asia. The companies and citizens in the transition economies are not only benefiting from producing for these supply chains but also by buying from the wide choice of products found in these supply chains. In addition, it is also expected that SCM will create the need for new communication, energy, and transportation infrastructure and enjoying the greater earnings that accompany supply chain integration as it has in other countries. New wide multi lane highways will be needed to accommodate the trucks crossing the country and linking Europe to the Black Sea. Warehouse companies will spring up throughout the country and jobs will be created in the port and manufacturing cities.

*Table 1*

### **Timeline of JIT/TQM Implementation at Toyota**

1940s	Statistical process control and other quality tools were introduced at Toyota and other organizations in Japan by W. Edwards Deming and Joseph Juran under the Marshall Plan to reconstruct Japan after WWII.
1949	Toyota introduced mutimachine handling by one worker. The worker was given a job with wider breadth. This new approach attempt to reduce boredom. One of the early aspects of Supply Chain Management is the belief that organizations should care the worker's well being.
1950	First andon board was introduced to assembly area. Andon boards controlled the assembly line rate. Any worker could now stop the assembly line if a defect was found. Toyota trusted workers to make decisions regarding quality defects and empowered workers with greater authority.
1950s-1960s	Toyota experimented with and developed specific tooling (e.g., transfer lines and cellular production). Workers with experience with a family of products would work together as a team.
1959	Operations were initiated at Motomachi plant, which was a large-scale experimental facility. Suppliers were asked to relocate there and provide dedicated supply capabilities. The nearby city's name was changed from Koromo to Toyota City.
1961-1964	Total quality management (TQM), as a management system philosophy, was introduced. Quality control technicians were replaced by a corps of empowered workers, who were each empowered to fix quality problems under the philosophical guidelines of TQM.
1963	Toyota's new practices were implemented at all of its facilities.
1965	Toyota received the Deming award. The award is Japan's highest and most prestigious quality prize given to one company each year.
1970	The system of rules was formally termed the Toyota Production System

**Source:** Toyota Jidosha Kogyo Kabushiki Kaisha, 1988

A second important factor for adopting SCM involves the use of emerging information and communication technology. Many consumers are now buying their products from the Internet. For example, a consumer can do a search of amazon.com and order any one of several books on any topic and receive the book in their mailbox within several days. Internet commerce depends on three basic infrastructures: a virtual marketplace (the Internet and software), a source of third party credit (e.g., credit cards and PayPal), and a transportation infrastructure (e.g., DHL and FedEx). Organizations are also using information technology to coordinate production transportation and administrative tasks along the supply chain. This technology is increasingly being provided by firms in Romania. In time, buying products and services over the Internet will be a common practice all over the world. The author of this chapter bought airline tickets from Travelocity with a credit card. The tickets were printed in San Antonio Texas, USA and shipped via DHL package to his apartment on Titulescu street in Bucuresti, Romania within two days.

Third, SCM may also serve as a way to develop and integrate Small and Medium Enterprises (SMEs) in Romania and other transitional economies. According to Hirschman (1958), key industries support a nation's or a region's economic development by creating linkages between suppliers and buyers. As an example, the automobile industry requires many suppliers for its complex variety of components and functions as a backward linkage industry. In a backward linkage industry, the final producer requires suppliers to provide subassemblies. The subassemblers, in turn, require that other suppliers provide lower level subassemblies, and so on. In a backward linkage industry, many small suppliers provide for several large final assemblers, thereby promoting regional development. The supply chain management model integrates small and medium enterprises into the formal economy and creates opportunities for them to export products and services in an indirect manner. The Dacia automobile company is one such example. They are buying steel from Romanian steel makers and glass from national producers, too.

### **8. Constraints of Implementing SCM**

The use of SCM in a transition economy will require the organizations overcome several constraints. Some of the resistance to introducing SCM to transition economies may be due to cultural factors. Nishiguchi (1994) contended that Japanese culture had a major effect on the formation of SCM in Japan during the mid-1960s. Prior to this period, Japanese firms generally did not act as cooperatively with their suppliers. In the aftermath of WWII, however, networks of related firms having common ownership and reciprocal ties emerged in Japanese industry. This type of network is known as a *kereitsu*. Within the *kereitsu*, Japanese firms worked more closely with their principal suppliers. The move to working more closely with suppliers and to giving employees greater autonomy to was a major cultural change in Japan. The transition to Japanese manufacturing techniques to the United States and to other western countries also required major changes. Changes occurred in academia

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also. For example, all coursework in the United States is now taught to some degree with students teams. Before the 1980s .

SCM implementation is constrained by two major factors. These constraints involve 1) low levels of physical and human capital and 2) a limited view of interorganizational cooperation. The physical capital constraints consist of technologies that were not updated during the 1980s and the transition of the early 1990s. Some of the privatized firms, particularly those owned by Romanian 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. Managerial learning will involve new methods of acquiring knowledge, and assimilating new values and systems so that company leaders can develop new organizational processes appropriate to their new needs (Clark & Geppert, 2002). 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 skills. The employees should see their fates tied to the performance of the firm and the supply chain. If the firm prospers, they prosper, too. The new skills must incorporate continuous improvement of processes and quality of products and services. The full benefits of SCM are not possible if employees are not allowed to solve problems and make decisions with a much larger degree of autonomy. Managers must get rid of the top-down mechanistic mentality that employees cannot be trusted to solve problems and make decisions on their own. Managers should empower employees to make decisions.

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 conduct research, write textbooks, and teach future managers about this new paradigm of conducting business. 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, management, and information technology departments at schools of business must work more closely to make sure that SCM instruction works fully. In other words, these institutions must be able to practice what they also preach. Finally, the coordination described up to this point depends to a large degree on trust among employees, managers, and organizations along the supply chain. In short, SCM provides a wide array of benefits but also requires revolutionary changes in the way organizations conduct their relationships.

### **9. Conclusions**

Supply Chain Management is new voluntary and cooperative approach among supply chain members to improve the flow of materials, products and services to customers at low cost, with high quality, and improved time performance. SCM is a systems based approach using new managerial and technology tools that are break down the barriers to cooperation and communication among and within firms. SCM, however, requires a high degree of trust. Many firms in the industrialized countries have been using SCM successfully. The use of SCM in a transition economy will require changing old attitudes and behaviors, equipment and adopting a new perspective of how firms along the supply chain can cooperate and create win-win solutions.

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