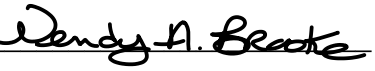
The attached seminar paper, by Sarfo Emmanuel Agyei, entitled Supply Chain Management - the Engine of Today's Globalization and Industrialization, when completed, is to be submitted to the Graduate Faculty of the University of Wisconsin-Platteville in partial fulfillment of the requirements for the Master of Science degree, for which 3 credits shall be allowed is hereby:

Approved:  Date: 12.20.2019

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Supply Chain Management - the Engine of Today's Globalization and Industrialization

A seminar paper

Presented to

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University of Wisconsin-Platteville

In Partial Fulfillment

Of the Requirement for the Degree

Master of Science

(Integrated Supply Chain Management)

By

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Abstract

Supply Chain Management is not a modern phenomenon in today's business world; however, it gained popularity and relevance in the 1990s. Different businesses find it a competitive advantage outsourcing supply chain functions to supply chain contracting firm specialists in helping companies cut their operational costs, focusing on what they do best, and achieving efficient and effective ways of finding the right products to produce, and getting these products to consumers.

In today's business world, belittling supply chain management is just calling for the collapse of the business. Every business in one way or the other uses supply chain in producing, marketing, and transporting finished products or services to final users (customers).

This paper will explore some literature works about Supply Chain Management (SCM) and Supply Chain integration, the impact of SCM in businesses in the era of globalization, the current trend of SCM and its barriers in today's global market, and how supply chain can successfully be integrated by using Walmart as a case study, and the way forward for SCM.

Based on the literature reviews, this paper concludes that no company or corporation has the blueprint for achieving a successful SCM and supply chain integration. Supply chain functions keep changing everyday as the global environment also keeps evolving. It is a continual learning process; companies must therefore be abreast with the times and they must keep on learning and adjusting to meet customer needs while increasing revenues.

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I. Introduction:

Supply Chain Management is not a modern phenomenon in today's business world; however, it gained popularity and relevance in the 1990s. Different businesses find it a competitive advantage outsourcing supply chain functions to supply chain contracting firm specialists in helping companies cut their operational costs, focusing on what they do best, and achieving efficient and effective ways of finding the right products to produce, and getting products to consumers. Every business in one way or the other uses supply chain in producing, marketing, and transporting finished products or services to final users (customers).

II. Literature review: Origin of Supply Chain Management and what it entails.

Origin of Supply Chain Management:

Murphy Jr. P.R and Knemeyer, A.M (2015) mention that Supply Chain Management was not popular prior to 1990. According to Professor Mentzer and colleagues, "the supply chain concept originated in the logistics literature, and logistics has continued to have a significant impact on the Supply Chain Management concept." Murphy Jr. P.R and Knemeyer, A.M (2015) state that in the 1990s, there was a growing awareness that "there could be value in coordinating the various business functions not only within organizations but across organizations as well – in what can be referred to as an SCM philosophy."

Giunipero et al. (2008) and Mentzer (2001) indicate that J.W. Forrester initially introduced Supply Chain Management in the 1960s. Two decades passed before scholars and practitioners researched the SCM. The numbers of SCM articles continues to increase yearly. According to Mentzer (2001), three factors that may have contributed to the increase in interest of scholars and practitioners on the concepts of SCM in the early 2000s include trends on global sourcing, emphasis on time and quality-based competition, and their respective contribution to a greater environmental uncertainty. In addition, in this age of global market/globalization, it is important for CEOs and managers of firms or companies to effectively manage supply chain functions to sustain their businesses in very highly competitive environments.

In the last decade, organizations have come to accept the fact that effective Supply Chain functions will aid in competing in the global market economy. Furthermore, another increase in the interest of SCM is the benefits that come with it. Some of the benefits are cost reduction and increase in revenue. Typically, every organizational goal is to increase profitability and market share. "Ultimately, the goal of SCM is to achieve greater profitability by adding value and creating efficiencies, thereby increasing customer satisfaction" (Stock and Boyer 2009, p.703). The field of Supply Chain is believed to still be in the growing stage because of the lack of coherence in the definition of the subject matter. In addition, there exist different frameworks for SCM. Researchers have come up with different definitions of SCM. While some authors have interpreted SCM as an activity or a process, others believe that it is a system or a network.

What is SCM and why do companies need SCM?

Ayers, JB. (2001) defines SCM as "the maintenance, planning, and Supply Chain processes activity for the satisfaction of consumers' needs." Murphy Jr. P.R and Knemeyer, A.M (2015) also define Supply Chain as "a combination of processes, functions, activities, relationships, and pathways along which products, services, information, and financial transactions move in and between enterprises from original producer to ultimate end-user or consumer." Investing in supply chain processes is a key factor in succeeding in globalization and industrialization (Murphy Jr. P.R and Knemeyer, (2015). Supply Chain Management therefore seeks to manage the supply chain linkages. It is important for individuals involved in supply chain processes to understand how the system works in order to improve production and to increase customer satisfaction.

Supply Chain goes beyond acquiring the raw materials, processing them to finished products, and getting them to the consumers. Companies must employ technical expertise to ensure high performance across the supply chain process. Certain practices and behaviors, which not traditionally adopted, must be embraced. Ayers, JB. (2001) state that Supply Chain involves life cycles (which includes both the market and usage life cycle), physical, information, financial flow, and services.

SCM is needed to manage the flow of goods and services. SCM can also be defined as managing the supply chain networks, which includes design, maintenance, and operation of supply chain procedures. The objective of Supply Chain Management is to reduce cost in production and to better serve customers. It also improves a corporate or company's competitiveness in the global market and as a result adapts to the changing needs of

customers. SCM also focuses on finance, operations, and marketing. According to Ayers, JB. (2001), Supply Chain does not have a one-approach fits all. It depends on what works for each company. The author explains that there is what we call a functional "paradigm" which exists in most companies. Many companies have individual departments, which have their own operations and guidelines. There is little linkage between the various departments in such companies. Departmental heads make the changes that might be without discussions between the departments, and this leads to less improvement of Supply Chain.

Procurement paradigm is another concept that looks at ways to lower material cost, i.e. cost production. The procurement leader is normally in charge of Supply Chain operations. This paradigm also favors one chain without improving the whole system of operations or Supply Chain. There is also a logistics and transportation paradigm. This is about meeting customers' needs by getting them their products and providing better services. The information paradigm focuses on ways to improve communication between the Supply Chain and the company as a whole. The Business Process Reengineering Paradigm is about eradicating waste and improving quality. (Ayers, JB. 2001).

John T. Mentzer (2001) differentiates between three types of Supply Chain. Figure 1 below shows a "direct supply chain" that is made up of an organization, a supplier, and a customer only, an "extended supply chain" which has additional chain of suppliers and customers, and the "ultimate supply chain" which consist of both the ultimate supplier and customer.

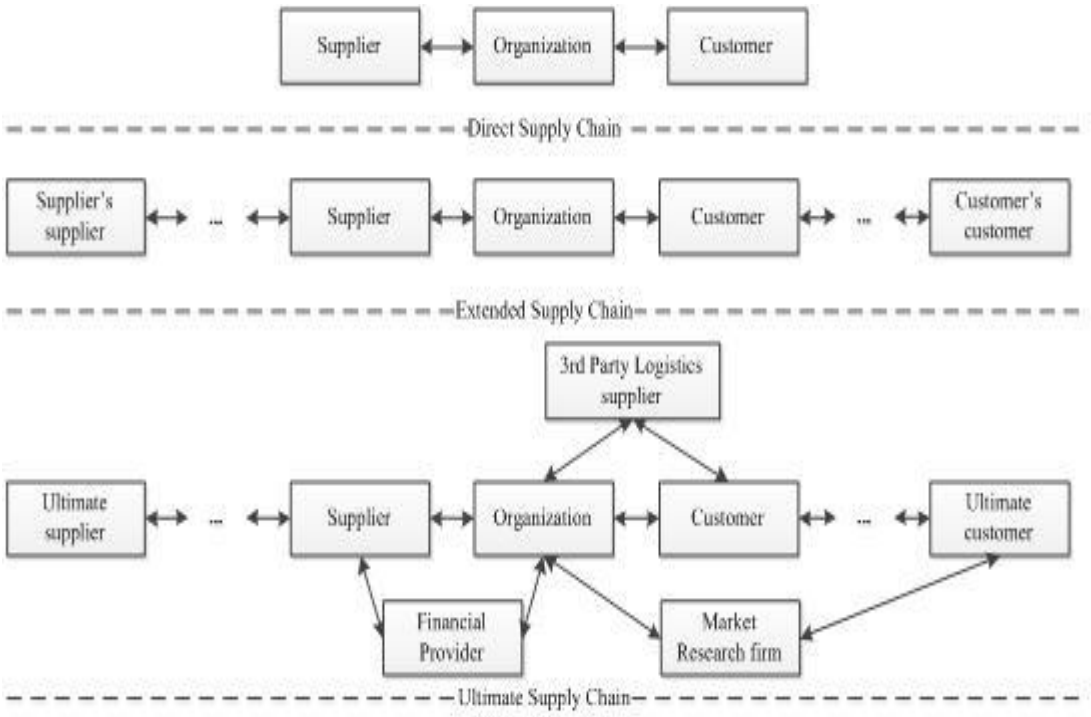

Figure 1 – "Defining Supply Chain Management," (John T. Mentzer, 2001)

Mentzer defines a Supply Chain (SC) as "the grouping of organizations or individuals that participate in upstream and downstream flows of "products, services, finances and information" from the source to a customer."

Today's trend of Supply Chain:

The Council of SCM Professionals point out that SCM has played an important role for linking business roles and business processes both within and across companies to ensure harmonization and high performance across the supply chain. (Murphy Jr. P.R and Knemeyer, A.M, 2015). For SCM to be effective, companies must apply a systems approach (which is mutual interdependence of the major functional areas of a company such as production, marketing, finance, etc.) across all departments in the supply chain. Murphy Jr. P.R and Knemeyer, A.M (2015) state that using the systems approach means

the departmental areas' goals and objectives must align with the company's goals and objectives. They must work hand in hand to achieve a common goal.

The Supply Chain Council (Supply Chain Operations Reference (SCOR) Model) and the Supply Chain Management Institute (Global Supply Chain Forum (GSCF) Model) have established two process frameworks of SCM. The core difference between the two models is the level of cross-functional involvement. Whereas the Global Supply Chain Forum Model includes all business roles, the Supply Chain Operations Reference focuses on logistics, operations, and procurement roles. The SCOR model has six processes, i.e. plan, source, make, deliver, return, and enable.

The GSCF model is made up of eight processes namely: customer relationship management, supplier relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, product development and commercialization, and returns management (Murphy Jr. P.R and Knemeyer, A.M, 2015). "A variety of enablers can influence a firm's ability to implement SCM, including managerial understanding of the implications of increased customer power, establishing appropriate relationship structures, leveraging technology for enhanced visibility and communication, and the use of supply chain facilitators." (Murphy Jr. P.R and Knemeyer, A.M, 2015).

In recent times, customers have a greater say about what they want because of the internet. Companies are listening more to what their consumers want and that is why it has become important for the design and management of supply chains. A fast supply chain focuses on speed and time. An agile supply chain deals with the organization's capability to respond to changes in demand concerning volume and variety (Murphy Jr.

P.R and Knemeyer, A.M, 2015). Murphy Jr. P.R and Knemeyer, AM, (2015) also state that external collaboration with supply chain can increase the competition in a company's supply chain. "Supply Chain collaboration is defined as the cooperative relationships between members of a supply chain – formal and informal – between companies and their suppliers or customers, established to enhance the overall business performance of all parties" (Matchette J. and Seikel A., 2004). There are three levels of Supply Chain Collaboration namely transactional, tactical information sharing and strategic (Matchette J. and Seikel A., 2004).

Difference between Supply Chain Management and Logistics Management:

The Council of Supply Chain Management Professionals (CSCMP) defines logistics management as "a part of Supply Chain Management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services; related information between the point of origin and the point of consumption in order to meet customer's requirements" (Murphy Jr. P.R and Knemeyer, A.M, 2015). This means that logistics goes hand in hand with SCM, both are needed to achieve a company's involvement in supply chain to achieve its goals and objectives. When the right logistics are in place, the various supply chain functions will be effective. The CSCMP clearly states that logistics must be involved in planning, implementing, and controlling.

In the past, logistics was known to focus on only forward flows and storage – directed towards consumption. Nevertheless, as time passed, logistics began to look at the reverse flows and storage, which is known as reverse logistics. Reverse logistics allows products

to be returned. Reasons for returned products can be product recalls, damages, or customer dissatisfaction. Logistics is about being tactical and strategic to achieve viable results. Both SCM and logistics management are geared towards customer satisfaction and requirements (Murphy Jr. P.R and Knemeyer, A.M, 2015). It is only when the customers are happy that a company can stay in business.

What is the significant impact of Supply Chain Management on businesses?

SCM in many industries or companies is rapidly evolving. Ayers, JB. (2001) states that SCM is both an offensive and defensive weapon. It allows individual companies to pick off entrenched competitors. If SCM is ignored, there could be severe loss of profitable customers. The impact of SCM includes, but is not limited to:

1. **Supply Chain leads to profitability and survival of a company:**

Things around us are constantly changing, and this applies in most business establishments. According to the Smithsonian institute, "Evolution does not change any single individual, but in totality it changes the inherited means of growth and development in a group of individuals of the same group in a particular habitat." A small positive tweet here and there within the supply chain can change the inheritable means of the growth or profitability in the supply chain in totality. Supply chain may be defined as the network where goods and services move around and through, from the producer to the final consumer. A simple sharing of information among parties in the supply chain injects effective growth increasing profitability of the supply chain (Mentzer et al., 2001).

With an effective SCM process in place, raw materials can be consistently delivered on time at the company's production facility to prevent a delay in production. When there are no raw materials, production will halt. If the supply chain functions break down causing a delay in arrival of raw materials, a manufacturer is forced to procure raw materials from outside of the normal supply chain source, which could cause extra money to be spent in the process eventually lowering profitability in the supply chain or causing the "Bull Whip Effect" (Mentzer et al., 2001).

Every company aims at maximizing profit and strives to achieve reduction operational costs. Some business go into bankruptcy or find themselves in debt from which it seems impossible to recover. How can a company achieve their primary objective of maximizing profit and achieving low operational costs? Today, studying SCM can open the possible gates to understanding the process. Understanding the company's supply chain process better can lead to the achievement of profitability in the totality of the supply chain and not just to the company. When members in the supply chain agree to plan together, coordinate ideas and share effective information it is the beginning to achieving profitability.

Furthermore, effective SCM aims at lowering distribution costs. When manufacturers have a cost-effective supply chain, overhead and direct sales cost may both be reduced in the same period. Effective planning and better communication can lower distribution costs (William, James, Soonhong, et al, 2001). When all individuals in the supply chain draw upon a common communication channel among themselves, it may lead to lowering distribution costs. From the beginning, raw material going to production facilities will arrive on time with the right quality and the right quantity and context. Orders that are

placed in the system have a high percentage of providing the right context for transportation at the right time. As the process is moving, each party that need to see the information will tailor their side accordingly.

The use of advanced technology in manufacturing companies can help with routing and navigating systems for their drivers to avoid delays on the road. The use of fuel-efficient vehicles, cost-efficient purchasing and order-processing systems, with strong handling and shipping procedures can lower supply chain costs while boosting the overall profits of the company.

2. **Effective SCM also considers – how to manage value.**

Mentzers J.T., Myers M.B and Stank T.P (2007) define managing value to mean: "To develop formal processes that uncover what customers around the globe value and create products and services that help to create value for carefully targeted customers where and when desired while at the same time creating value for one's own firm – extracting value from the marketplace." Companies tend to compete against each other in the financial market. In addition, those that offer a more competitive return tend to flourish and grow.

On the other hand, companies that do not engage in this competition are limited in their ability to grow and most times their businesses fade out quickly. In today's financial market, there is an ever-increasing demand of customers, heightened competition, and ever-chasing technology. (Mentzers J.T., Myers M.B and Stank T.P (2007).

According to Mentzers J.T., Myers M.B and Stank T.P (2007), SCM has the potential to provide the solutions needed to meet the challenges of today's global market. The authors elaborate Andraski and Haedicke's (2003) study and explore the financial benefits of

collaborative planning forecasting, and replenishment. The study shows that: “sales increased by 12% on average from lower stock-out losses, improving promotional planning increasing the service levels in total. Inventory and other related expenses decreased from 20% to 40%. This was as a result of lowering safety stock because of greater confidence in the forecasting and planning process, and there was a 3.5% to 7.5% decrease in production requirements which resulted in better scheduling and distribution.” Mentzers J.T., Myers M.B and Stank T.P (2007) state the key drivers of financial performance as follows:

- Growth: annual growth in revenue
- Profitability – percentage of profits after deducting from revenue total operating expenses such as cost of goods sold and selling, general and administrative expenses.
- Capital utilization also known as SPEED - dollars invested in assets such inventory, accounts receivable, warehouses, fleets, manufacturing, and stores.

Most of the time, companies rely on return on capital as the most significant measure of investment and profitability. Return on capital (ROC) is defined as net operating profits after taxes as a percentage of capital. In addition, it is beneficial to measure ROC as a combination of profitability and SPEED.

Another measurement used to compare performance is capital utilization. Capital utilization is an area with great potential for SCM solutions to improve the overall financial performance for companies (Mentzers J.T., Myers M.B and Stank T.P, 2007). “A company may manufacture, distribute, or create new products, but its real business is the generation and reinvestment of cash. The quicker the cash is

generated, the quicker a business can grow, and the higher it's financial performance and, ultimately, its return to shareholders." (Mentzers J.T., Myers M.B and Stank T.P, 2007).

Mentzers JT, Myers M.B and Stank T.P (2007) give an overview of how the various levels of leadership in a company view SCM and how it maximizes production and profit (figure 2). The views of the different leadership levels must be incorporated to create a more meaningful and substantial factor for changes in the SCM.

CxO	View of Supply Chain Management
CEO	The CEO tends primarily think about SCM from the perspective of delivering value-adding growing revenue. This includes items such as product availability, new product speed to market, and customer service.
CFO	The CFO tends to think about SCM in terms of its ability to help better manage the balance sheet primarily in terms of inventory and fixed assets and the income statement in terms of better managing SCM- related expenses.

COO	The COO tends to touch multiple parts of a business, and thus tends to think about SCM from numerous vantage points. This including balancing supply with demand, sufficient levels of inventory to keep production flowing, adequate spare or warranty provisioning, efficient procurement operations including assuring that suppliers have adequate notice of current and future demand, and how distribution and logistics operations can be improved to enhance customer service.
VP of Supply Chain	The VP of supply chain or chief logistics officers tend to view SCM as a means to an end – how he/she can use demand for goods and services. The VP of supply chain typically looks at all aspects of the required SCM. Functionally including buy-side, sell-side, planning, and execution.

VP Sales	The VP of sales most often thinks of SCM in the context of customer serviceability. Are there sufficient quantities of the right products to sell? Operationally, he/she also recognizes an ongoing need to provide accurate and timely field forecasts.
VP of Procurement	The VP of procurement tends think about SCM in terms of its impact on suppliers. Is there the right level of visibility in current and future demand? That includes both quantities and required lead times or replenishment times.

Figure 2: CxO view of Supply Chain Management (Mentzers J.T., Myers M.B and Stank T.P, 2007).

3. SCM enhances cost reduction in Supply Chain process:

Many companies aim at achieving successful and sustainable supply chain cost management, but along the line they lose the zeal or momentum and things fall right back – increasing costs within a short period. When goods produced fail to reach customers on

time, many risk factors arise forcing a company to incur extra dollars to correct things. The money invested in fixing mistakes done in the supply chain process could be invested in improving the supply chain networks. Companies incur extra costs in shipping when wrong products are sent to customers. All these delays in time and the extra money spent could be avoided if proper supply chain procedures were in place. "Supply Chain integration considerably increases the capability of managers to define the proneness in the chain in order to impact improvements. However, without a trustworthy method to help managers in detecting obstacles along the Supply Chain, it becomes more complicated for managers to acquire the knowledge they want for benefiting fully from Supply Chain integration." (Janvier-James, A.M, 2012). Supply chain integration aids in improving performance. It is possible for a company to increase profits without necessarily increasing sales. This is possible if the company reduces the supply costs, i.e. the supplies, shipping cost, storing, and retrieving materials.

The supply chain expenses can be reduced by managing every phase of the supply chain process. There is a need to break down the chain into its essential elements so that one can see ways to make the supply chain functions work more efficiently. Through an efficient supply chain, the storage space and time to keep supplies and inventory in a storage area can be reduced. If the necessary work is done, an efficient storage strategy can reduce the amount of space a company uses and the time period it takes to find and pull items which eventually could result in reduction of rent and payroll costs. With the issue of raw materials suppliers, a company with a strong SCM can find multiple suppliers instead of just focusing on one supplier and therefore increase competition on orders. Several suppliers can compete on the price of raw materials which will enable the

company to make their choice. Also, the use of several suppliers at all times avoids costly delays in receiving products/materials. Furthermore, using multiple suppliers reduces risk, in that, if one supplier decides to stop doing business with the company, another can provide the items. In the long run, using multiple suppliers protects the buyer/company from spending more money.

A well-structured SCM will find ways to speed up shipments from suppliers by ordering close to the time the company needs the supplies. Ordering supplies far in advance can increase warehouse costs because the company has to store raw materials for a long period of time and products may get damaged or get lost. Procurement manager(s) can examine supplies and determine whether the time it takes to transport supplies can be shortened from where the company receives them to where the company needs them. Transportation from suppliers and within the company can add days to the company's supply chain thereby increasing costs.

Frazelle E. (2002) talks about the use of two types of warehouses namely local and value-added service.

- Local warehouses: Distributed in the field in order to shorten transportation distances to permit rapid responses to customer demand. Frequently, single items are picked and the same item may be shipped to the customer every day.
- Value-added service warehouses: Serve as the facility where key product customization activities are executed, including packaging, labeling, marking, pricing, and returns processing.

An effective SCM in a company can establish supply needs based on a pattern of demand by customers. The cost-effective pattern evaluates customer-demand patterns often seeing

seasonal and even monthly assumptions of customer's needs which may change. Based on a company's most current evaluation, adjustment can be made on the company's supply order. The company's examination of their ordering process should see where to avoid waste. Part of supply chain costs come from the ordering system. For example, if a company has multiple people filling out demands, using multiple software platforms or even paper checklists, there could be over-ordering. In addition, if there's no approval process in place, individual employees have the power to order supplies whenever they want even if not needed thus costing the company extra money. Proper SCM could eliminate or reduce extra costs in the ordering process.

When warehouses are computerized it helps both the warehouse and operation managers to work effectively and efficiently. The use of a computerized warehouse will aid the managers in:

- Profiling warehouse activities, problem areas are identified and dealt with.
- Monitoring warehouse performance in productivity, shipping, and inventory accuracy, warehouse order cycle time, and storage density.
- Simplifying the warehouse operations by optimizing and communicating transactions to or from warehouse operators and equipment. (Frazelle E., 2002).

4. Supply Chain Management helps in satisfying customers need:

Without customers, no company will be in business. Customers play a vital role in sustaining companies. This is why it is necessary for companies to pay attention to the demands of their customers. It is important for companies to initiate, maintain and enhance the relationship with their customers. An effective SCM focuses on satisfying

customers, creating customer loyalty, and creating and maintaining commitment between companies and their customers. SCM combines marketing strategies and IT to create profitable, long-term relationships with customers and other key stakeholders. When customers are satisfied, they will provide positive feedback, buy a greater variety of products and services, and trade up, which will lead to increase in profits and improve the company's value (Baran R.J and Galka R.J, 2017). If companies understand the correlation between customer satisfaction, loyalty and profits, they will do everything possible to ensure the SCM works effectively.

Satisfaction is key to create, maintain and enhance customer relationship. Service quality and customer satisfaction are important to U.S businesses (Baran R.J and Galka R.J, 2017). Effective SCM ensures total satisfaction of customer's purchase and consumption experience with a good or service. Quality service is determined by the customers through feedback and continued patronage of the company. Customers who are not satisfied will not remain loyal and they tend to tell more people about their experience than satisfied customers with good experience will do. This is why it is necessary for companies to ensure supply chain functions work effectively through proper management. Satisfaction has a direct correlation between loyalty and profits. "Leaving a customer dissatisfied damages a company in two ways: loss of business from that customer and negative word of mouth leading to the loss of business from many others." (Baran R.J and Galka R.J, 2017).

Baran R.J and Galka R.J, 2017 state that the relationship between a company and its customers can be divided into three groups:

a) An acquaintance relationship exists when a customer is satisfied with the product or service a company provides because it is on par what he or she could get elsewhere.
b) A friendly relationship exists when the customer trusts that a company provides differentiated value.
c) A partner relationship exists when the customer is committed to the company because it provided customized value. When there is commitment, both parties will do whatever is necessary to maintain the relationship.

When there is a strong satisfaction, trust is established then commitment follows. (Baran R.J and Galka R.J, 2017).

Loyalty of customers is key to sustaining a business, which builds the company's brand. Baran R.J and Galka R.J, (2017) mention four types of loyalty namely:

i) Behavioral loyalty simply looks at the brand(s) purchased.
ii) Affect loyalty: Affect are the feeling components of an attitude and include "liking" and preference.
iii) Situation-specific loyalty: With this model, a customer may forgo purchasing a brand he likes and prefers because of another brand's promotion or availability. Other factors maybe an individual's economic circumstances, personality, and the buying situation (on-the shelf availability, low price, point-of-purchase displays, sales promotion).
iv) Latent loyalty: When customers might not purchase a brand often because of its high price, but when they do purchase the product, they will always buy from that brand.

5. **Supply Chain Management helps to boost a company's production and delivery:**

For any successful business, SCM plays a crucial part in operations. SCM establishes a strong communication and relationship between suppliers and helps to avoid delays in shipping as well as minimizing errors in logistics. In a company's selection of suppliers, it is not enough to choose suppliers based on cost, but also on reliability. Suppliers who are reliable will deliver goods on time so that production can go on. Moreover, this allows the company to deliver the best products on time to their customers. SCM ensures the flow of goods and services in an efficient way. SCM ensures the right team does thorough research to identify suppliers who have a strong reputation for maintaining high standards for quality, customer-care, and packaging, among others so that the company can get value for their money. Quality production also has a link with quality raw materials. An effective SCM invests in employee's development.

An employee's development is not only limited to formal training curriculum, but also on-the-job training, coaching, mentoring, rotation through multiple assignments, and training based on scenario modeling. All of this training helps employees to understand not just how the processes work, but also the impact it has on the business or industry. SCM also takes into account the need to monitor and evaluate the supply chain processes at all times. The SCM looks for ways to improve and renovate the processes to increase more substantial cost benefits, increase speed to market, and deliver the highest standards of customer service. In a constantly changing world or global market, continuous improvements need to be constant. The corporation must never stop finding ways to improve things.

Furthermore, in this age of technology, the use of technology plays a big role in strengthening SCM. For instance, the implementation of Warehouse Management System makes it easy to track, document and evaluate the effectiveness of a company's SCM over a certain given period. It also strengthens data collection as well as providing valuable insights through data analytics. Again, companies that have a high level of SCM should invest in transportation management software. Using computerized shipping and tracking systems help to integrate all operations from one panel. This helps to organize the company's inventory data, manage shipping, monitor distribution, etc. wherever you are either in the office or outside the office. In summary, the use of technology enables companies to eliminate difficult manual intervention and speeds up decision-making. Technology-driven SCMs in companies play a huge role in helping companies to gain competitive advantage. All this, boosts production and delivery.

"Productivity is an important managerial issue because it provides insight into the efficiency (inefficiency) with which corporate resources are being utilized." (Murphy, Jr. P.R. and Knemeyer A.M., 2015). Three ways to improve production are:

- Reduce the amount of input while holding output constant.
- Increase the amount of output while holding input constant. (Production improvement efforts in logistics fall into this category).
- Increase output while at the same time decreasing input (human labor is considered an input). [Murphy, Jr. P.R and Knemeyer A.M, (2015)].

Logistics play a major role when it comes to production. A good supply chain manager will work hand in hand with the logistic manger(s) to ensure quality production and delivery.

III. What is the current trend of Supply Chain Management in the 21st century and its barriers?

Globalization is not only affecting the world's economy, but SCM operations and processes. Advanced means of dealing with container shipments, removal of tariff barriers, forming meaningful trade blocs, creating alliances and collaboration production, and subcontracting manufacturing and services to other countries are some of the factors contributing to the increasing global trade (Grant DB, 2014). Increase in competition in today's global market and the introduction of products with shorter life spans have increased the expectations of customers which primarily impacts business investing and paying closer attention to supply chain networks.

Many changes have occurred in the 21st century, which may be linked, to product and process innovation in supply chain operations, advancement of desire managing the system and shaping customers' demand. Supply Chain has gone through a lot of changes over the years. Some years ago, for instance, in a manufacturing company, supply chain would report to the manufacturing unit and would handle of procurement and shipping. In another instance, supply chain used to report directly to the Chief Executive Officer, General Manager or even the president of the company. Supply Chain has grown over the past two decades and businesses are getting more involved in the process and establishing effective SCM.

SCM has provided many solutions to businesses in this new age. SCM solutions have facilitated to curb inconsistencies in a company's financial situation. Supply chain currently is positioned as an enabler of revenue margin growth and procurement processes. The involvement of external interest groups such as the community and

environmentalist voices are engaged in the output of supply chain. Products produced must go through additional segments in their life cycle to reduce contamination and damage to the environment. This is known as a "zero-waste supply chain." It can create a recycle process where product is re-used.

While companies or corporations are hoping to attract customers across the globe for future market growth, just a few are prepared for the intricacy that arises from serving global customers while using locally customized products (Mentzer JT., Myers MB. Moreover, Stank TP, 2007). Supply Chain cost adjustments would be needed to meet global demands. In addition, risk and opportunity management must be extended to the entire supply chain networks. Supply Chain organizations seem to lack assimilation between product development and manufacturing tasks, this hinders economic recovery benefits. SCM practices are rapidly expanding, but the challenges are inevitable. In view of this, the SCM industry must find ways to deal with these challenges effectively or companies will not be able to achieve competence and profitability in their globalization struggles. Supply Chain Managers must have knowledge how to track and revolutionize the challenges that may happen in Supply Chain (Mentzer JT., Myers MB. And Stank TP. (2007).

What are the challenges facing today's domestic and Global Supply Chains?

During the 20th century, most supply chains operated under a traditional model, in other words supply chain operated in a batch production mode, as demand exceeded capacity and performance was measured in weeks. Customers were willing to compromise on what they needed. Large batches of products were conveyed in trucks to warehouses in

regional locations and distribution centers. Then from these locations, products were distributed to retail stores or other manufacturing facilities. The period between when a customer placed a specific order and when the product was being delivered could take months. Manufacturers and suppliers related very well and worked together peacefully. (Mentzer JT., Myers MB. And Stank TP. (2007).

In the 21st century, supply chain operates in a totally different environment. "Capacity now outstrips demand for almost any product or service demanded by an end user, and the execution time is measured in days, hours, and sometimes, minutes. 21st century supply chain is more of demand-driven, customer-centric model that must respond quickly to fast changing customer demands" (Mentzer JT., Myers MB. & Stank TP. (2007). Today's supply chain model is referred to as the lean supply chain. The lean supply chain is all about delivering products to customers in a quick manner and essentially creating flow across the supply chain. The lean supply chain is designed to follow this process:

1. Start with the customer
2. Deliver what is demanded
3. Build what is sold
4. Supply what is consumed
5. Balance the flow

This lean supply chain only produces a product when the customer demands of it. This type of production allows the supply chain members to delay commitment of their valued resources and raw materials until there is a demand for that product or service. (Mentzer

JT., Myers MB. & Stank TP., 2007). The flow across the lean supply chain follows like pattern:

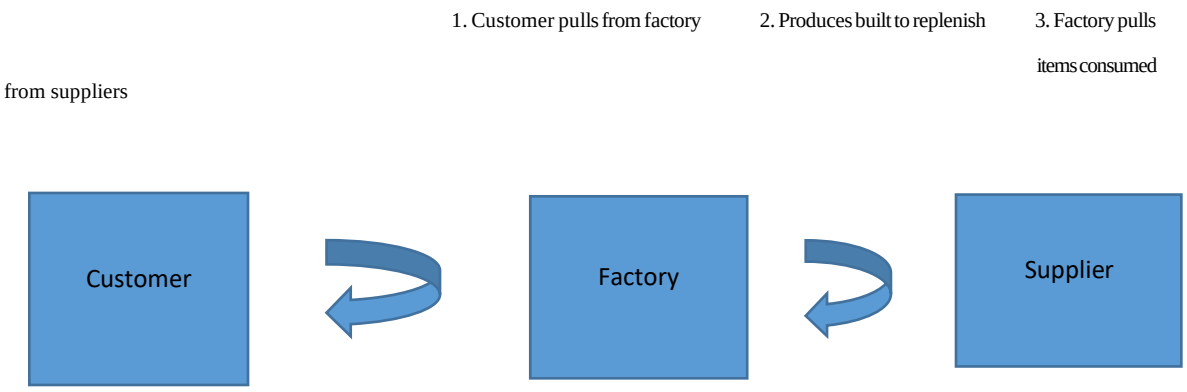

Figure 3: Use Pull Signals to Create Flow across the Supply Chain

(Mentzer JT., Myers MB. & Stank TP., 2007).

"In today's supply chains, geographical distances between the partners are longer than in the past owing to firms seeking to take advantage of labor, raw materials, and tax differentials. These opportunities stimulate the organizations to expand and enlarge their supply chain across different countries" (Mentzer JT., Myers MB. & Stank TP, 2007). Globalization requires a strongly coordinated flow of goods, information and cash within and across national boundaries (Mentzer JT., Myers MB. & Stank TP, 2007). In view of this, many corporations or industries have decided to subcontract their supply chain abroad/oversees where the raw materials and cost of labor is cheaper or lower than in their home market. The challenge of doing business abroad is that each country has its own specific elements of originality and peculiarity, and companies must match their

chain strategies with different cultural requirements or laws. (Mentzer JT., Myers MB. And Stank TP, 2007).

A company can have an effective global supply chain design, which is very detailed, but it must take into consideration a fit and match between culture and strategy, which is important for strategy implementation and great performance. “Every firm should consider specific cultural aspects, such as ethnic, racial, political, and religious characteristics, for both supply chain partners and other entities within the market” (Griffith and Myers, 2005; Christie and Marshall, 2001). Design and management of supply chain activities must take into consideration the influence of differences in culture, industry structure, legal requirement, and infrastructure in different countries on customers, suppliers, competitors, and supply chain partners. When people are engaged in a business practice, they operate based on their cultural orientation. (Mentzer JT., Myers MB. & Stank TP, 2007).

An understanding of the effects of cultural factors, which affect supply chain connections, can result in better management of a global chain and better relationships between partners. (Mentzer JT., Myers MB. & Stank TP, 2007). “Compatible corporate culture and management techniques of each organization in a supply chain are necessary for successful supply chain management.”(Mentzer JT., Myers MB. & Stank TP, 2007).

Instability of foreign currency also remains an issue of concern to supply chain managers. The failure to correctly account for foreign currency exchanges can cost a business a great deal of money every year. Mentzer JT., Myers M.B. & Stank TP, (2007) state that: 1% change in currency value can lead to thousands of dollars in losses. Inventory that goes on in foreign warehouses must be repeated during reporting periods when

fluctuating exchange rates might result in a gain or loss. For supply chain managers to reduce financial and accounting complexities in global supply chain transactions, managers should conduct transactions in the company's home currency.

Another challenge of global supply chain management is the issue of political economies. The political economy of a country forces institutions to change their supply chain designs. A proper assessment of political economic situations can help a company save in prices and market opportunities. "It is essential to evaluate political risk, credit risk, social risk, and market risk and minimize their effects through awareness of their impact and cost across global supply chains." (Mentzer JT., Myers MB. & Stank TP. (2007).

On the other hand, Supply Chain managers must not ignore the continuous growth of e-commerce in advancing businesses. The Chief Supply Chain Officer Report in 2013 says that, more than half (55%) said the demands of e-commerce and consumers who use mobile phones are increasing the number of stock-keeping units they have to support. Industrial manufacturers and distributors must build multichannel networks that can concurrently process orders from multiple ordering channels. This helps to provide the highest level of customer satisfaction and lower production cost.

Supply Chain Managers sometimes do not pay proper attention to potential risks. The inability of supply chain managers to determine and identify potential risks and develop strategies that can arrest risk that have a high probability of occurring can destroy business continuity and profit. For example, if a company is engaged in the global market, having a global procurement network can support and help with the supply chain needs. Manufacturing companies also face the pressure to produce high quality products in this fast pace and demanding global market. The number of products that are recalled

each year increases yearly. Having a lot of product recalls can destroy a company's reputation.

The use of technology in SCM does not fix everything. "Putting technology ahead of strategic design and operational requirements is a frequent shortcoming. Consequently much effort is wasted or even counterproductive." (Ayers, JB., 2001). For technology to work effectively, companies must spell out their vision and mission not only to external customers but also employees involved in supply chain networks – warehouse, transportation, and sales. Supply Chain Managers must aim at developing new production skills and work on acquiring a return on investment (Ayers, JB., 2001).

What are some of the barriers in Supply Chain Management implementation?

SCM can be seen as an effective tool for the growth and sustainability of an industry; however, certain barriers can block its effectiveness. Examples of these barriers are as follows:

i. Regulatory and Political Considerations

In the United States, cross-business coordination was adopted by the passage of the National Cooperative Research and development Act of 1984 (Knemeyer AM. & Murphy, Jr. PR., 2015). "Long-term commitments, which are one of the bedrocks of SCM, may stifle competition to the extent that they make it more difficult for others to enter particular markets" (Knemeyer AM. & Murphy, Jr. PR., 2015). Even though the global climate for a business has allowed more collaboration among companies, individuals/corporations still need to seek legal advice before entering into any future Supply chain partnership. Political uncertainties in a country can also prevent some

organizations from emerging or developing supply chains that depend on companies located in such a country. One other thing to consider when doing business outside your home country is governmental stability. Since SCM is dependent on inter-organizational coordination, governmental policies that discourage such business partnership or doing business with certain, countries can influence the effectiveness of supply chain (Knemeyer AM. & Murphy, Jr. PR., 2015).

ii. Lack of Top Management Commitment

Top management commitment is integral in any company's attempt to initiate and implement new initiatives, programs, or product introductions. The success of supply chain in a company will depend largely on the commitment of top management. "Top management has the ability to allocate the necessary resources for supply chain endeavors and the power to structure, or restructure, corporate incentive policies to focus on achieving organizational and inter-organizational (as opposed to primarily functional) objectives. A recent research pointed out that actual senior management commitment to SCM is only one out of every three organizations" (Knemeyer AM. & Murphy, Jr. PR., 2015). The reason may be that, top management might be uncomfortable or may not understand some dealings or structure of SCM.

iii. Reluctance to Share, or Use, Relevant Information

One of the tenets of SCM is that a well-run supply chain is characterized by information sharing among their members (Knemeyer AM. & Murphy, Jr. PR.,

2015). However, some organizations are unwilling to share information, specifically information that might be trademarked. If this happens, supply chain problems may arise because members tend to make decisions based on assumptions or wrong data. Advancement in computer hardware and software allows substantial amount of information to be processed and analyzed speedily (Knemeyer AM. & Murphy, Jr. PR., 2015). "Supply Chain analytics combines technology with manual employee effort to identify trends, perform comparisons, and highlight opportunities in supply chain processes, even when large amounts of data are involved" (Knemeyer AM. & Murphy, Jr. PR., 2015).

When supply chain analytics are supported by technology, it helps decision makers to make critical decisions in areas such as sourcing, inventory management, manufacturing, quality, sales, transportation, and logistics. In addition, the supply chain analytics help to control enterprise applications, the internet, data warehouses, and information, which is obtained from external sources to check data patterns. (Knemeyer AM. & Murphy, Jr. PR., 2015). The authors - Knemeyer AM. & Murphy, Jr. PR., (2015) state that companies sometimes feel reluctant to fully utilize such information that is retrieved from the data, they believe the detailed data that can be provided by the credit that was used to purchase,detailing when and where it was purchased, how it was purchased violates the customer's right to privacy.

iv. Incompatible Information Systems

Years ago, incompatible hardware was a major hindrance to inter-organizational collaboration, but in recent times, the issue is rather software incompatibility. Organizations must make a choice between a single integrator approach and a best-of-

breed approach. When an organization goes with the single integrator approach, they tend to rely on a single vendor to provide all the important software applications such as inventory management, product management, value and customer service and warehouse management. (Knemeyer AM. & Murphy, Jr. PR., 2015).

An advantage of using the single integrator approach is that there must be coordination across all the various applications. For the best-of-breed approach, you must choose the best application for a particular function or task. (Knemeyer AM. & Murphy, Jr. PR., 2015). For instance, an organization can get supply management software from one company and logistics management software from another company. If a company wants to go with the best-of-breed approach, the company must acquire additional software packages to coordinate the different applications and sometimes this assimilation does not always process smoothly (Knemeyer AM. & Murphy, Jr. PR., 2015).

v. Incompatible Corporation Cultures

When corporations are not compatible, they cannot work together effectively since very corporation has a culture. The aim of corporation partnership is to maximize production, reduce cost and increase revenue while meeting customer demands around the globe. "Corporation culture refers to "how we do things around here" and reflects an organization's vision, values, and strategic plans" (Knemeyer AM. & Murphy, Jr. PR., 2015). Since SCM involves a long-term partnership between various parties, it is therefore, important for the partners involved to ensure they are comfortable working with the companies they are partnering with. Organizations must look for corporations

that they are compatible with. They must identify prospective differences that could affect supply chain effectiveness and efficiency negatively. (Knemeyer AM. & Murphy, Jr. PR., 2015). Organizations must look for clues in their intended business partner's corporate culture expressions.

vi. Globalization Challenges

Organizations are getting more involved in the global supply chain because of cheap labor, lower-price materials, and the development of global competition. However, Supply Chain integration in the global supply chain can be very challenging because of differences in culture, economics, technology, political systems, logistics, etc. (Knemeyer AM. & Murphy, Jr. PR., 2015). Global supply chains can take a much longer time for shipments and may cause unpredictable events such as products being out of stock. For instance, from the time an order is placed, to the time one receives it can take an extended period. This can lead to non-fulfilment of customer's demand. Other hitches that can occur in the global supply chain include but are not limited to "documentation errors, packaging errors, routing errors, incomplete shipments, and failure to follow order guidelines." (Knemeyer AM. & Murphy, Jr. PR., 2015). All these barriers can lead to customer dissatisfaction.

PRTM, which is a global management consulting firm, conducted a survey some time ago to understand the trends in SCM from 2010-2012. They identified five supply chain challenges facing global companies/corporation in the 21st century. The findings include:

- Consumers are increasingly price sensitive and less brand-loyal, resulting in commoditization and a permanent increase in supply chain volatility
- While most participants are looking to international customers for future market growth, few are prepared for the complexity that results from serving global customers with regionally customized products
- End-to-end supply chain cost optimization will be critical in future
- Risk and opportunity management should span the entire supply chain, including the supply chains of key partners
- Existing supply chain organizations are not truly integrated or empowered -- lack of integration between product development and manufacturing functions are standing in the way of capturing the benefits of economic recovery.

[Geissbauer, R. & Diheur, M. (2010), Millen, J. & Walker, L. (2010)]

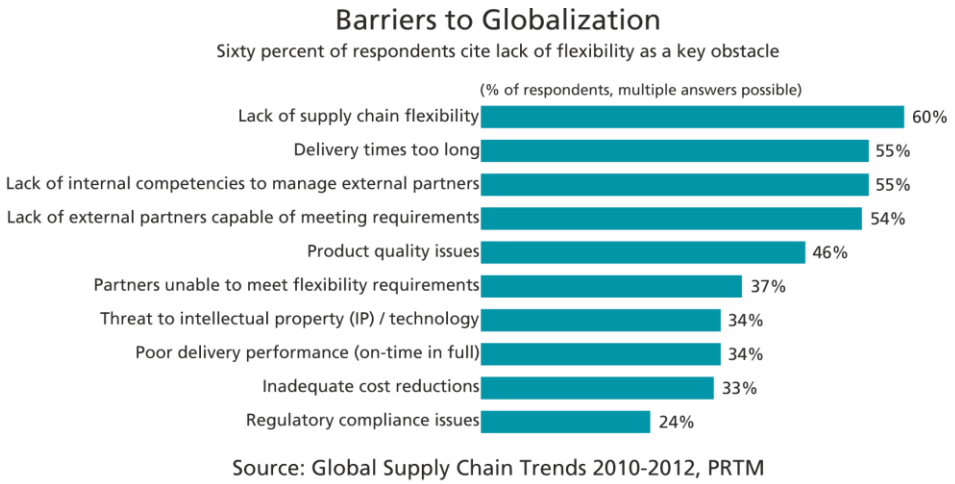

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Figure 4: Barriers to Globalization

PRTM also evaluated barriers to globalization; the top three barriers were found to be lack of supply chain flexibility, prolonged delivery time, and lack of internal competencies to manage external partners. Sixty percent of respondents cited lack of flexibility as a key obstacle and twenty percent mentioned regulatory compliance issues as the least barrier as shown in figure 4.

SCM practices might be growing rapidly, but there are still challenges that need to be addressed. Companies/industries will continue to be less productive and less profitable in their globalization efforts if these barriers are not tackled.

IV. How can Supply Chain be Successfully Integrated and Managed?

Case Study: Walmart's Supply Chain Integration.

Corporations can be involved in multiple supply chains simultaneously. "Supply chains are integrated by having various parties enter into and carry out long-term mutually beneficial agreements." (Knemeyer AM. & Murphy, Jr. PR., 2015). These agreements have several names such as partnership, strategic alliances, third-party arrangements among others. Agreements made must be designed to favor or benefit all partners involved by providing incentives to partners to work toward achieve success. In addition, partners must share the consequences when corporative ventures are not satisfactory (Knemeyer AM. & Murphy, Jr. PR., 2015).

Organizations or corporations must bear in mind how arrangements or partnerships they enter into can affect the rest of the supply chain. Before any agreement is reached, all parties must establish whatever arrangements are important to ensure that all the supply chain networks function in an effective and desirable way. Before any specific supply chain is integrated, the various corporations must recognize the shortcomings of the current system and study the current existing channel arrangements and as they currently are. (Knemeyer AM. & Murphy, Jr. PR., 2015). "All this is done within the framework of the organization's overall strategy, as well as any logistics strategies necessary to support the goals and objectives of the firm's top management." (Knemeyer AM. & Murphy, Jr. PR., 2015).

In attempting to integrate supply chains, corporations can use three methods to achieve this goal.

1. Vertical integration: where one organization owns multiple participants in the supply chain. For instance, the Ford Motor Company back in the 1920s owned forests and steel mills and controlled its dealers tightly. An issue with vertical integration is that regulations (state laws) may limit the degree this method of integration would be permitted in some specific industries. (Knemeyer AM. & Murphy, Jr. PR., 2015).
2. Formal contracts among various members: one of the use of contracts is franchising, "which attempts to combine the benefits of tight integration of some functions along with the ability to be very flexible while performing other functions." (Knemeyer AM. & Murphy, Jr. PR., 2015). A franchiser may exercise control over what products are purchased by a franchisee, suppliers of these

products, and the distribution of the products to the franchisee. (Knemeyer AM. & Murphy, Jr. PR., 2015).

3. Informal agreements among various organizations to pursue common goals and objectives with control being exercised by the largest organization in the supply chain. The disadvantage of the informal agreement is that the largest and powerful organization can become more controlling or dictatorial than a partner. Having some flexibility will allow partners the chance to switch supply chains when need be. (Knemeyer AM. & Murphy, Jr. PR., 2015).

"Supply chain management is moving the right items to the right customer at the right time by the most efficient means, no one does that as well as Walmart." (Army Col. Vernon L. Beatty).

Walmart is currently the world's largest retailer (Forbes 2016) and it ranked the number one in the Global Fortune 500 List in 2016 (Global 500 2017). Walmart – a global retail giant has more than 11,700 retail stores, approximately 2.3 million employees in about 28 countries around the world. It manages an average of $32 billion in inventory (According to Supply Chain Digest). A key factor contributing to the leading position of Walmart in the retail industry lies in its effective supply chain (Traub, 2012). Walmart is a successful retailer because of its cost-effective and high level of supply chain integration. In addition, Walmart's retail and supply chain management (SCM) strategies have also become competitive advantages to accelerate its growth over competitors. (Nguyen TTH, 2017). Over the past two decades, Walmart has become the largest and maybe the most powerful retailer with the highest sales. The brand has transitioned from being a regional retailer to a global powerhouse. Indeed, the Walmart has become synonymous with the

model of successful supply chain management. “I don’t believe there is a university in the world that doesn’t talk about Walmart and the supply chain, they are just so well respected because they do it so well.” (James Crowell, director of the Supply Chain Management Research Center at the Walton College of Business).

Walmart has become the leading retail giant because it has a decision-making system that relies on data analysis through a barcode scanning system, a point-of-sale system, and real time data collection (Mark, 2012). Walmart started with the aim to provide their customers with the goods they needed –that is, whenever and wherever they wanted them. The company then focused its attention on developing cost structures that permitted it to offer low pricing. Next, the organization concentrated on developing a highly structured and advanced SCM strategy to explore and strengthen this competitive advantage and to take the leadership position in the global market.

[Walmart's successful supply chain management (Lu, 2018)]

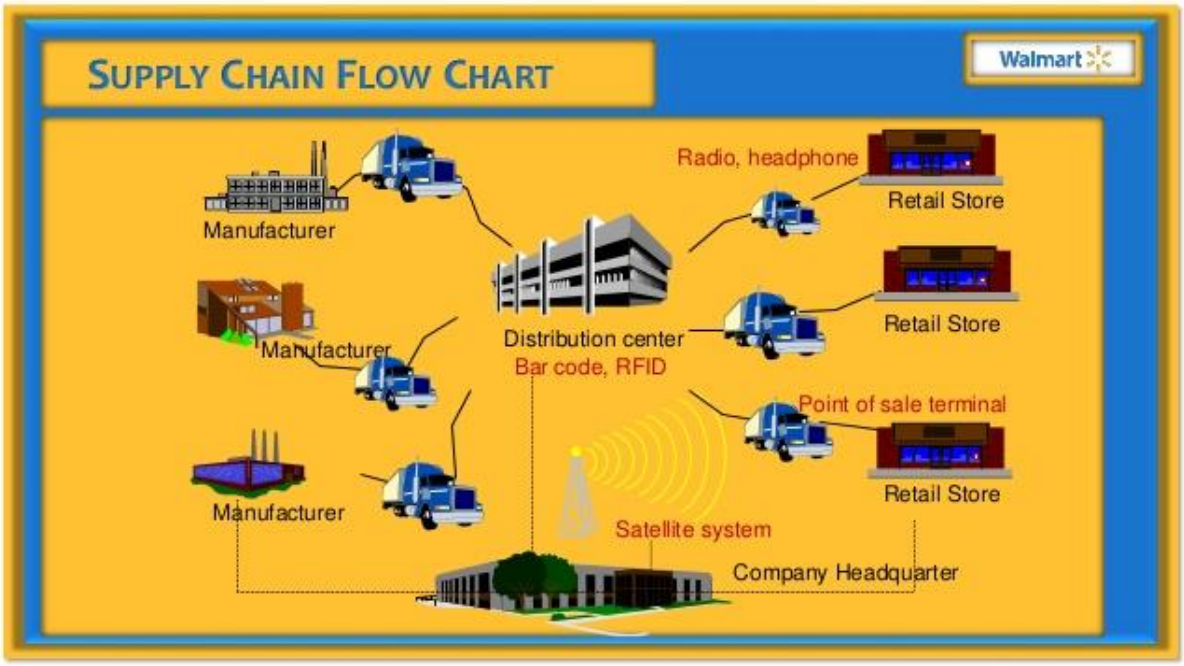

Figure 5: Walmart's supply chain flow chart

(4 things that make the Walmart supply chain successful (Mayelin24, 2017).

Some of the supply chain strategies adapted by Walmart that has made it a successful organization include:

1. **Few intermediaries in their supply chain and competitive strategy:**

Since the 1980s, Walmart began working directly with manufacturers to lower cost and better manage supply chain functions. By working directly with manufacturers, the manufacturers produced private label products of Walmart merchandise and later sold them at a significant discount (Nguyen TTH, 2017). Manufacturers were responsible for managing their products in Walmart stores and warehouses. In view of that, Walmart was able to expect hundred-percentage total re-supply of all products.

[Four things that make the Walmart supply chain successful (Mayelin24, 2017)].

Walmart's competitive strategy is to provide the best quality of products and services at the lowest affordable price for its customers (Chandran, 2003). In order to achieve this, the company starting discounting merchandise off the suggested retail price in the 1960s and then adopted an 'Everyday Low Prices' (EDLP) program in the 1970s and 1980s to make room for a wide range of quality products and services at a comparatively low price than other retail stores (Walmart 2012, Nguyen TTH, 2017).

2. **Strategic vendor partnerships and use of EDI (Electronic Data Interchange) with suppliers:**

As an organization, Walmart finds products at the best price from suppliers who are in the best position to meet demands. Walmart establishes strategic partnerships with most of its suppliers. They offer the suppliers the possibility and flexibility of large and long-term purchases in exchange for the lowest possible prices. Over the years, Walmart improved its SCM by building communication networks with its suppliers to create the flow of materials/goods. All the mediators in the supply chain are connected through technological tools, which include a central database, point-of-sale systems at the store level, and a network of satellites. The use of Electronic Data Interchange with its suppliers cuts the transaction costs associated with ordering of products and the paying of invoices.

The ordering of products and paying invoices are more efficient and productive with the use of EDI. Furthermore, the use of EDI with Walmart's suppliers gives Walmart the upper hand to control and coordinate the scheduling and receiving of product deliveries. This provides a steady flow of the right product(s) at the right time, to be delivered to the right distribution centers by suppliers. [Four Supply Chain Concepts from Walmart

(Hugos, 2014)]. Radio frequency identification (RFID) tags have been added in recent years, and numerical codes that are used to scan goods from an interval to track the movement of goods/products along the supply chain. In addition, the RFID tags enable employees to access the information of products. For example, the time and location the goods/products were produced and their expiration date. Furthermore, the RFID technology helps Walmart to identify and track inventory from manufactures to warehouses and then its retail stores (Nguyen TTH, 2017). The company uses smart tags, which are read by a scanner that is handheld which allows employees to quickly know which items need to be restocked. [Four things that make the Walmart supply chain successful (Mayelin24, 2017)].

3. **Cross docking for inventory tracking:**

Walmart is known for operating its own trucking system successfully and operates an innovative cross-docking logistics technique whereby products are delivered from inbound to outbound trailers without intermediate storage (Johnson, 2008). Walmart uses cross docking as a logistics management strategy to replace inventory proficiently. By definition, cross docking is the direct transfer of products from one truck to another output, without using any extra storage. Walmart's suppliers deliver their products to Walmart distribution centers; the product is moved to other trailers, which then deliver the products to its retail stores. Cross docking aids in reducing inventory and transportation costs, transit times, and helps in eradicating inadequacies in the system. Walmart usually builds a distribution center around a central location that can serve and support a number of new stores in a geographical area.

The distribution center supports the opening of new stores around the area where the distribution center is located at minimal additional cost. In addition, by using these technologies, one distribution center is able to serve a cluster of retail outlets as well as add food distribution centers in the supply chain to handle the high velocity goods (Nguyen TTH, 2017). The cross-docking process normally is done within a day. This approach has reduced the organization's costs significantly, which has allowed Walmart to pass those savings on to their customers by offering them lower prices. [Four things that make the Walmart supply chain successful (Mayelin24, 2017)].

4. **Use of technology:**

Walmart is also a leader in technology. The organization invests in advanced technology to monitor their stores, track inventory, and restock their shelves. This monitoring allows them to cut costs in their pursuit to lower consumer prices. "Freeman et al. (2011) indicate that Walmart is not only a business leader, but also a technology leader in which its supply chain coordinating technique for collaborative planning, forecasting, and replenishment (CPFR), and vendor managed inventory." (Nguyen TTH, 2017). The CPFR program helps Walmart to minimize alterations of demand information and coordinates the business plan with supply chain partners. With vendor-managed inventory, the data is shared between Walmart and its suppliers in order to maintain the lowest cost of its inventory. (Nguyen TTH, 2017). Walmart uses high technology gadgets and network design that enable the organization to correctly predict demand, control and predict inventory levels, create high-efficiency transportation routes, and manage

logistics for customer relationship and service. [4 things that make the Walmart supply chain successful (Mayelin24, 2017)].

For example, “Walmart implemented the first company-wide use of Universal Product Code (barcodes) in 1983, through which store level information was immediately collected and analyzed. Later, Walmart leveraged this now-everyday technology into a further innovation: Savings Catcher, which allows consumers to scan product barcodes on their smartphones to compare best prices.” [Walmart's successful supply chain management (Lu, 2018)]. Furthermore, through a global satellite system, Walmart has also devised a retail link, which connects analysts who are able to forecast supplier demands to the supplier network and display real-time sales data from cash registers to Walmart’s distribution centers. [Walmart's successful supply chain management (Lu, 2018)].

Walmart’s supply chain approach allows informal cooperation among stores, distribution centers, as well as suppliers. Furthermore, because of the company’s supply chain system, which tracks the customer’s purchases and demand, the products that are needed to fulfill the customers demand are sent to the stores. Walmart’s effective SCM has resulted in lower product costs, reduced inventory-carrying costs, and has improved in-store variety and selection. Having an effective inventory management, Walmart is able to reduce inventory taxes and insurance costs, which increases the company’s profitability (Nguyen TTH, 2017). Walmart continues to invest in innovative processes and systems as technology evolves to improve its supply chain functions and to achieve maximum efficiency. [Walmart's successful supply chain management (Lu, 2018)].

Walmart has a supply chain with a very high degree of functional and organizational integration in which new service or product development, supplier relationship, order fulfilment, customer relationship as well as internal and external associations are incorporated into the company to minimize unexpected changes in customer' demands or supplies in the supply chain. Furthermore, the partnership between Walmart and its suppliers plays a key role in enhancing the efficiency of Walmart's supply chain. (Nguyen TTH, 2017). Walmart always customizes their operations with their suppliers, which gives a large platform to their brands. Again, most of the company's largest suppliers are located near the company, which makes it more convenient for the company to partner with its suppliers. What also makes Walmart's supply chain integration successful is that, the company focuses on internal relationships between the company and its employees and the external relationships between the company, suppliers and customers. (Nguyen TTH, 2017). The establishment of a company uniform also minimizes miscommunication between coordinators, truck drivers and workers.

V. What is the way forward for Supply Chain Integration and Management in the 21st century?

In the 21st century's global competitive environment, Lee (2004) and Shin & Tucci (2015) suggest that in order for a corporation to achieve an ideal supply chain, it must redesign its supply chain towards a more integrated supply chain with three capabilities, i.e. agility, adaptability and alignment which they call "The Triple-A supply chain" (Nguyen TTH, 2017). Though Walmart has a strong partnership with its suppliers, it is difficult for Walmart to maintain the profit margin balance between different parties

(Chiles & Dau, 2005). This can lead to failure of supply chain functions/practices by generating conflicts between parties and refusal of cooperation between partnerships involved (Nguyen TTH, 2017).

Lee (2004) mentions that, “a supply chain which concentrated much on speed and cost-effective would lead to a worse performance, reduce customer’s satisfaction regarding products availability and the company’s competitiveness, while a supply chain with all three capabilities including agility, adaptability and alignment could improve the performance and enhance both short-run and long-run competitive advantages.” (Nguyen TTH, 2017).

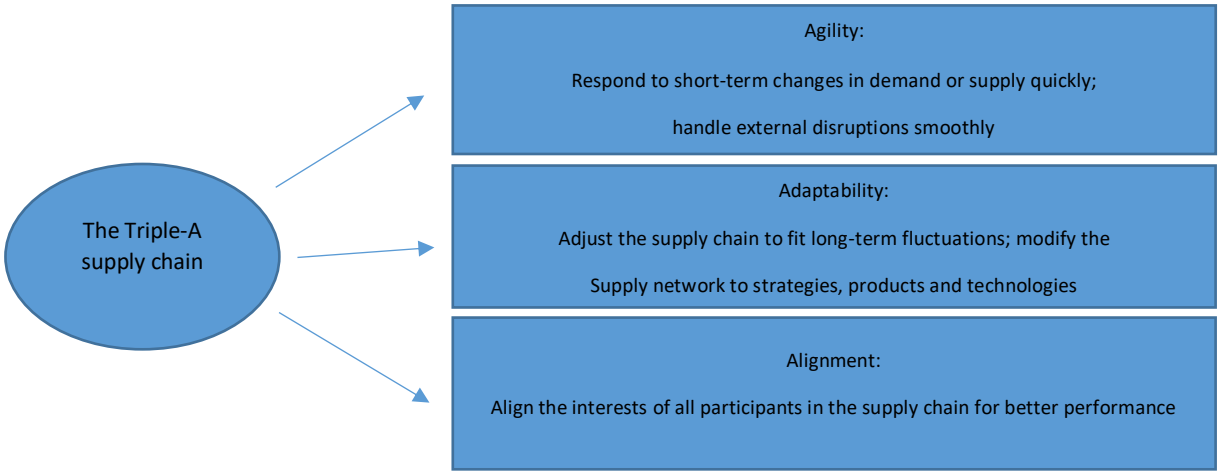

Figure 6: Characteristics of the Triple-A supply chain (Lee, 2004).

From the figure 6, the first quality is agility, which is designed to respond quickly to short-term changes in customer’s demand and supply, handle unpredicted external

disruptions smoothly and cost-efficiently, and recover quickly from shocks such as natural disasters, economic instability, etc. In short, agility is the capacity to act and react. ((Nguyen TTH, 2017). Walmart is an example of a company that prepares itself for the unexpected such as hurricanes. The company focuses on global weather conditions, analyzes point-of-sale data to see which products/goods were sold quickly in past storms, they send trucks full of those extra products to their stores to adapt to customer's demand. In addition, the company positions trailers full of water, food, among others that can be easily distributed (Johnson, 2008).

Lee (2004) affirms that companies can build an effective agile supply chain by providing the data fluctuations of supply and demand to its partners often in order for the partners to respond speedily to changes (Nguyen TTH, 2017). Secondly, companies and their suppliers must work together to restructure the processes, components and products in such a way that bring the business edge for the company over its competitors. Thirdly, companies should try to keep a small inventory, non-bulky product components to finish products to prevent delays in manufacturing. (Lee, 2004, Nguyen TTH, 2017).

The second quality of the Triple-A supply chain is adaptation**.** This quality focuses on adjusting the supply chain in the face of long-term fluctuations in product life spans and markets such as political shifts, economic growth, demographic trends, etc. (Lee, 2004). Companies must keep adapting the supply chain networks to fit to market changes. Lee (2004) mentions that understanding trends and changing the supply network are two key characteristics needed to build an adaptable supply chain. For instance, in today's global competitive market, companies must occasionally check the economic changes because such changes tend to influence the operation of supply chain. (Nguyen TTH, 2017).

Furthermore, companies should consider creating different supply chains for different product lines to optimize the proficiency of each supply chain. In addition, creating the right alignment among partners such as manufacturers, distributors and retailers is also key in improving the company's supply chain performance, which is the third quality of the Triple-A supply chain. (Nguyen TTH, 2017). According to Lee (2004), alignment seeks to ally the interests of all parties in the supply chain with their own company. "There are three types of alignment, including alignment of information, alignment of identities such as roles, duties and responsibilities, and alignment of incentives in relation with risks and costs." (Lee, 2004).

Lee, (2004) states the four steps to achieve an alignment supply chain include:

a) The company has to provide an equal opportunity for all partners to have access to the data of sales, forecasts and plans.
b) Clarifying the roles and responsibilities of each partner is the next important step to avoid conflicts.
c) The company should redefine the terms of partnership to share risks, costs and rewards equitably aiming to improve the supply chain performance.
d) The company must align incentives so that its partners act in a way maximizing both the entire supply chain's performance and their profits.

Nguyen TTH, (2017) however acknowledges that his findings and suggestions about the ideal way to build an effective supply chain (Triple-A supply chain) is still open for more research. It is not the ultimate way to build an effective supply chain.

VI. Summary of Supply Chain Management:

The success of every business/company is linked to the effectiveness of its supply chain. A high-performance supply chain will result in revenue growth. The goal of SCM is integrating demand and supply management. At a basic level, SCM involves at least nine major interrelated management areas namely:

- transportation
- inventory
- warehousing
- packaging
- forecasting
- networking design
- ordering procedures
- customer service
- scheduling

(Mentzer, J. Myers, M, Stank, T. 2007)

SCM focuses on coordination and collaboration across multiple organizations in a customer-driven and focused manner (Mentzer, J. Myers, M, Stank, T. 2007).

The basic functions of supply chain are:

- the supply of products to the manufacturer
- work in process,
- inventory and

- ❖ Finished product distribution to the final customer. (Coyle, Langley, Novack & Gibson 2016, 8).

An integrated supply chain should be the first vital requirement to improve a company's supply chain performance and to achieve an ideal supply chain. Understanding the environment in which a company/corporation operates or will operate is vital to strategic development and its application.

It is important for firms to know the areas that will help them to understand global supply chains, i.e. global supply chain strategy, assessing the global environment, value and customer service management, demand management, knowledge management, and process orientation. (Mentzer, J. Myers, M, Stank, T. 2007). Supply chain innovation is vital today. Supply chain innovation is about innovation in products, services, and processes that impact SCM. In addition, the supply chain innovation should be a process innovation to create a more lasting competitive/differential advantage, because processes are very difficult to imitate by competitors. SCM is mainly about process management. (Mentzer, J. Myers, M, Stank, T. 2007).

However, corporations and supply chain parties must carefully choose the type(s) of innovations they wish to pursue. This will require having extensive resources and maybe a decade of investment. Mentzer, J. Myers, M, Stank, T. (2007) mention that to pursue innovative products, services, solutions, or processes, they must have the possibility to improve the supply chain performance through:

1. cost reductions
2. revenue increases
3. decreased capital or

4. all of the three

For companies who seek to manage global supply chains must consider:

- Identifying opportunities to develop and strengthen supply chain partnerships with organizations also interested in seeking innovation
- Formalizing processes for being innovative with supply chain partners.
- Identifying opportunities to transfer supply chain services from one region of the globe to another.
- Recognizing the unique differences in customer desires from one region to another and innovating accordingly.
- Looking at products, services, and processes when looking for innovation opportunities.
- Identifying emergent technologies globally that offer supply chain innovation opportunities.
- Keeping a customer focus when developing innovations.

(Mentzer, J. Myers, M, Stank, T. 2007).

From time to time, top management must question and change strategies to adjust to new conditions.

VII. Conclusion:

In conclusion, no company or corporation has the blueprint for achieving a successful SCM and supply chain integration. Supply chain functions keep changing everyday as the global environment also keeps evolving. It is a continual learning process; companies must therefore be abreast with the times and they must keep on learning and adjusting to meet customer needs while increasing revenues. The customer must be a primary focus when a company/firm is considering supply chain strategy, network design, and performance management.

The supply chain performance will influence a customer's mindset of a business and the service they receive from it. A company can always learn from other companies how supply chain strategy has worked for them but may have to tailor suit the strategy to make it work for one's company. Effective SCM requires commitment from all levels. Investing in an effective SCM can be quite expensive at the beginning, but it pays in the end. Grow and sustain your business with an effective SCM.

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