

Impact Of Traditional Supply Chain Management On Green Supply Chain Management

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Abstract: In industrial arena, Supply Chain Management is the process of converting raw materials into finished goods and services within a quick delivery time with a minimized wastage capacity. Concept of Green Supply Chain Management is an upgraded process of Traditional Supply Chain Management which mainly focuses on the green manufacturing, green packing, green delivering and marketing. Surveys state that Traditional Supply Chain Management is a main reason for the hazardous problems like environmental degradation, pollution, carbon emission, resource depletion and massive wastage of raw materials. To suppress and reduce these harmful problems logisticians and consultants introduced the concept of Green Supply Chain Management. After the implementation of the Green Supply Chain Management process experts found that the level of above mentioned harmful problems have been reduced. First part of this paper discusses about the concepts of Traditional and Green Supply Chain Management. It also discusses about the burning issues in Traditional Supply Chain Management and how the Green Supply Chain Management was introduced to overcome those problems. Next part discusses the transition barriers and challenges that encounter when implementing the Green Supply Chain Management. Finally, the paper reveals the main objective of the research; the impact of Traditional Supply Chain Management on Green Supply Chain Management and the suggested solutions for those facts.

Keywords: Traditional Supply Chain Management, Green Supply Chain Management, SCM, GSCM

Introduction

As a result of industrialization and the competition in the global market, most of the organizations and companies are compelled to consider the customers' demands and requirements. When considering the marketing process, those companies have the responsibility of increasing the manufacturing process and reducing the delivery time of the products. In this current competitive marketing scenario, it is significant to study the concept of Supply Chain Management as companies have to encounter many

challenges in providing the products which are up to customer expectations at an affordable cost.

The definition of the term Traditional Supply Chain Management (TSCM) in industrial jargon can be simply interpreted as the conversion of raw materials into finished goods and products and also delivering the products in time to the end-users (Parkhi, 2015). Besides that, it is the combination of key business processes that provide product and services from the suppliers to end-users within a short delivery time (Janvier-james, 2012). TSCM has been applied to accomplish basic purposes such as profit maximization, maximization of operating performance, and to develop the interrelationships and better management within the organization (Stock, Boyer and Harmon, 2010a). As researches

mentioned, the history of TSCM goes back to the early 1980s and the concept itself has been launched by the experts of the management arena and the consultants of the logistics (Habib, 2014). It is evident that TSCM is the most important and the vital concept in management since its inception.

The concept of Green Supply Chain Management can be delineated as an integration of sustainable environmental criteria with the concept and the practices of Traditional Supply Chain Management (Luthra et al., 2011). Basically, TSCM deals with five main components which include raw material, industry, distribution, consumer, and, waste (Sulistio and Astuti, 2015). As the logisticians and management experts state, the linkage and the relationship of the above main components pose many threats including environmental pollution and depletion of resources. Therefore, as a solution to the harm caused by TSCM to the environment, the concept of GSCM was firstly introduced in 1994 (Shan and Wang, 2018). Afterward, the above-mentioned problems were gradually reduced to a greater extent. Further, the organizations and the industries started to use the eco-sustainable supply chain practices so that it was a massive encouragement to end the environmental degradation (Shan and Wang, 2018).

When establishing the GSCM instead of TSCM, the organizations and the industries had to encounter considerable disadvantages along with the benefits while fulfilling the end-user expectations. Organizations had to consider both social and economic factors when launching the GSCM concept within the organization (Luthra et al., 2011). In addition to that, there were various beliefs and restrictions among the society (basically among the employees) when changing into GSCM concepts such as some employees did not prefer to change, and they liked to

continue with the existing concept. In this light, the objective of this study is to analyze the impact on TSCM on GSCM while focusing on its effect on the production process.

Litratue Review

The term Supply Chain Management (SCM) can be exemplified as the management of the process of converting the raw materials in to finished goods which are up to customer expectations and delivering those products and services to the customer in a quick delivery time (Swanson et al., 2018). Further, it is the process of integrating the key business processes from the supplier to the end-user. After introducing the concept of Traditional Supply Chain Management (TSCM) in early 1980's, the manufacturing process in most of the industries was rapidly increased and it was mainly focused on the basic purposes such as profit maximization, development of the interrelationships, maximization of operating performance and management within the organization (Stock, Boyer and Harmon, 2010a). Essentially, a supply chain can be considered as an inter-linked network of individuals, organizations, activities, resources and technologies involved in the manufacturing industry and the management of this combination will provide the expected goods and services to the customers at a considerable price (Croom, Romano and Giannakis, 2000). Having an effective and efficient management of the traditional supply chain, industries and organizations wish to have the benefits such as linking the manufacturer, supplier and customer, having the utmost use of the shared resources both internal and external of the organization, low cost, added value and increased customer satisfaction (Stock, Boyer and Harmon, 2010a). As the experts mentioned Technical, Managerial, and Relationship are the three major perspectives that challenge Supply Chain Management (Patil, 2015). These three types of perspectives affect when

implementing the concept of SCM. Many research mention some other challenges that arise when implementing a supply chain such as procurement management, and globalization (Fernandes et al., 2014). Here, procurement management refers to the challenges that have to be encountered when procuring the products from the suppliers and the globalization refers how to cut cost and grow simultaneously. Furthermore, it is essential to study the concept of the Traditional Supply Chain Management especially about its key processes, challenges and barriers encountered when implementing the supply chain because having an undoubtful knowledge about this concept will help to clarify the problems in industrial and manufacturing parlance.

As the consultants, and logisticians depict there are five main stages in a TSCM which acts like a cycle specifically planning, developing, making, delivering and returning (Giménez et al., no date). As the initial stage of a TSCM, in the planning stage it is necessary to develop a plan or a strategy which depicts how the product and services will appease the demands and the expectations of the customers. In the developing stage it is necessary to concentrate not only about building a strong relationship with the raw material suppliers, but also should identify the trustable delivery methods and payment methods of the products. After completing this stage, the responsible managers such as supply managers can combine all these processes together for handling their inventories. Starting the manufacturing process according the customer's demand is done in the third stage and the supply manager should schedule all activities required to be done in manufacturing, testing, packaging and delivery. This stage also known as the most metric-intensive unit in the conventional supply chain process. Manufactured products and services are

scheduled to deliver to the customers at their destined locations is done in the fourth stage: the delivering stage. The final stage is the returning stage which referred as the return. Damaged and the destroyed products are returned by the customers to the suppliers is done in this stage. It is essential to deal with the customer responds and feedbacks. This is the process of traditional supply chain which shows the typical flow of converting the raw materials in to demanded products until the delivery and return of those products. (Croxtton et al., 2001)

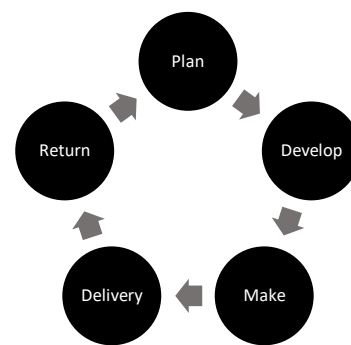


Diagram 1. Supply Chain Process
Source: Author Designed

With the upheaval of industrialization; organizations and manufacturing industries had to face many challenges and problems not only socially but also economically as the Conventional Supply Chain Management Systems was the reason for many of those problems (Groznika and Trkman, 2015).

- Environmental degradation including environmental pollution and depletion of resources.
- The wastage of energy, emission and chemical and solid waste.
- Increased costs of raw materials and other infrastructure.
- Consumer demands shows the need for quality products and services.
- Unforeseen delays.

To overcome the above-mentioned challenges and problems the consultants and logisticians introduced the concept of GSCM

firstly in 1994 as a higher modification of TSCM after accomplishing many surveys and experiments and they observed that many of those problems can defeat by launching the GSCM concept throughout the industries and organizations (Aslinda et al., 2012). GSCM followed the basic practices used in TSCM with the integration of eco-sustainable practices as an issue was aroused that TSCM concept causes environmental degradation including environmental pollution and depletion of resources (Shan and Wang, 2018). To stop this environmental degradation the consultants and the logisticians modified the TSCM concept into ecological supply chain management concept (Jayant and Azhar, 2014). As such, GSCM concept can be delineated as green purchasing, green manufacturing, green packing, green delivering and marketing (Dashore and Sohani, 2021). Other than that, it reduced the waste in the form of energy, emission and chemical and solid wastage (Luthra et al., 2011). In order to minimize these harmful facts, a proactive GSCM was suggested to improve the environmentally sustainable supply chain concept. In terms of greening the TSCM concept, the Interpretive Structural Modelling (ISM) technique was used and it was introduced in Indian industries (Rahman et al., 2020). This ISM technique was advantageous to eliminate the caused barriers when implementing the GSCM concept. The main purpose and the focused area of GSCM concept was analyzing the benefits, costs, and risks associated with the environmental performances. According to the other researches there are three main phases in manufacturing process namely resource utilization decrement, waste decrement and finally the emission decrement (Muysinaliyev and Aktamov, 2014). Reverse stage in GSCM mainly focuses on return on products and materials in order to forwarding them to recycling, remanufacturing and refurbishing or safe disposal (Zulkefli, Mahmud and Zainudin,

2019). GSCM can be considered as one of the best strategies introduced in order to minimize the environmental degradation as in this current turbulent industrial upheaval the environmental issues cause the most harmful damages to the society in industrial and manufacturing arena (Bhattacharjee, 2017). Altogether, above mentioned facts depict that GSCM process follows the same practices used in TSCM combined with ecological facts. However, surveys state that after preceding the GSCM concept and the qualities of the new concept helped to overcome the problems and challenges caused due to TSCM.

After the experts recognized the need of eco-sustainable supply chain to the manufacturing industry, there were many barriers occurred while implementing the GSCM concept (Series and Science, 2019).

- The lack of integration of IT systems.
- Lack of acceptance of advancement of technology.
- Uncertainty in competing with the rival manufacturing industries.
- The cost of implementing and maintaining is comparatively high.
- Lack of green architects, green developers' green consultants and experts.
- Prevailing culture of the organization.
- Lack of commitment of the top management.
- Lack of resources.
- Lack of technical knowledge and experience.
- Lack in managing standard environmental control policies within the organization.
- Lack of commitment and the support of the government.

- Lack of adequate environmental measures.

These transition barriers were negotiable and should be solved before implementing the GSCM concept. In that era, the developing of the information technology was not in a considerable state. For the implementation process and maintaining process, the need of various computer-based applications, programs and software utility was high in the purpose of exchanging data and information. In case of that, there was a problem when implementing the GSCM concept given the lack of integration of IT systems. Majority of the employees of the industries refused to adapt to the change because of the lack of technological knowledge and they preferred to maintain the existing concept. Likewise, lack of acceptance of advancement of technology was a severe barrier when transition to new concept. Due to the industrialization upheaval the global competitiveness was high so that there was an uncertainty in competing with the rival manufacturing industries. The cost of implementing and maintaining of a GSCM concept was very high than the conventional supply chain management system as there was different types green methodologies to implement such as green manufacturing, green design, green delivering and marketing (Luthra et al., 2011). When launching the green concept instead of traditional concept, an industry needs considerable number of experts, consultants and logisticians with purpose of training employees and maintaining the system. But unfortunately, in that era the amount of expert management such as green architects, green developers and green consultants was a very low to implement this green concept in industries. (Dashore and Sohani, 2021) Likewise, above mentioned barriers caused many problems while in the transition of TSCM to GSCM.

As researches state challenges that must to encounter when implementing the GSCM concept can be divided in to two separate parts namely internal challenges and external challenges (Zulkefli, Mahmud and Zainudin, 2019). Here, internal challenges can be delineated as the challenges that have to face among the employees of the organization and the problems occur inside the organization. Further the challenges that have to face outside the organization in known as the external challenges. When considering the internal challenges there are some major facts that should be considered when implementing the GSCM concept. Most of the time, before executing the implementing process within the organization, it is necessary to consider about the prevailing culture of the organization. Goals, objectives, vision and the mission of an organization can be changed in time to time. Not only that but also if an organization replace their basic cultural fundamentals such as organizational structure (forms of authority), core technology, and operational and marketing strategies, it will be a challenging task when implementing the GSCM concept. It is necessary to have a commitment of the top management when introducing a new concept to the organization because the success or the failure of the organization completely depends on the ability of the managers to motivate the employees in the organization. Managers should encourage the employees; they should train the employees and they should teach them how adapt to the change of the organization. If the top management do not consider about those factors it will be challenge as whole functionalities of the organization depends upon the top management. Internal challenges faced by the organization include lack of resources, lack of technical knowledge and experience and lack in managing standard environmental control policies within the organization. The most significant

external challenge is the lack of commitment and the support of the government. The government of a country should provide necessary infrastructure to the organizations when launching such projects. Lack of adequate environmental measures such as sustainable auditing and certifications like ISO14001 also can be considered as the external challenges when implementing the GSCM within an organization. (Zulkefli, Mahmud and Zainudin, 2019) Likewise, above mentioned challenges may affect when implementing the concept of GSCM both internally and externally.

Not only the challenges and the barriers but also the impact of TSCM on GSCM should be considered when implementing the GSCM concept (Aslinda et al., 2012).

- Competition with rival industries.
- Reluctance of adapt to the change.
- Fear of failure.
- Unawareness of customers, employees and suppliers.
- Non-availability of bank loans to encourage the green concept.
- Lack of understanding about remanufacturing process.
- Implementing the efficient materials and wastage management systems.

Market competition can be considered as one of the most affected impact on GSCM. Basically, the market competition in TSCM would be high because the concept of GSCM is a new experience for the manufacturing industries and the experience gained from this new concept is lower than the experience gained from the concept of TSCM. Because of this, the process of manufacturing would be gradually falling down until the employees adapt to the change. Majority of the customers also only practiced to the traditional concept and new to the green concept. So that it is also an impact of TSCM

on GSCM. As this is a new concept to all the users, there can be a fear of failure. All users have experienced the conventional system, but limited number of users have experienced the new concept. So that the probability of failure is high. Not only the unaware of the customer but also the unawareness of supplier is also may affect badly on GSCM concept. As the execution of green concept makes high costs, majority of the industries have to ask for bank loans. But the problem is non-availability of bank loans to encourage the green concept and maybe it is because of the lack of knowledge of the green concept. This is also can be considered as an impact of TSCM on GSCM. Before practicing the green concept all the organizations used for the functions of traditional concept. In traditional concept organizations did not consider about the recycling or the reusing concept. Although the organizations started to practice the new green concept, they don't care about remanufacturing process severely. Hence, it is also a significant impact of TSCM on GSCM. In addition to that, implementing the efficient materials and wastage management systems is also can be considered as massive impact of TSCM on GSCM. (Luthra et al., 2011)

Given that, for the above-mentioned facts organizations can suggest the solutions as follows.

- Improving the remanufacturing process.
- Financial incentives will encourage the GSCM process.
- Providing proper understanding to the employees.
- Introducing new methods for remanufacturing process.
- Improving the quality of the products.
- Cost effectiveness and efficiency.

- Increasing the market share and the growth in the industry.

Initially, many of the experts mention that, from the construction of activities which have less deteriorated to the environment can improve the remanufacturing process of the industries. With the appropriate financial incentives like tax incentives and subsidies from the government, it will indirectly encourage and increase the construction sustainability and also it will neglect the impact caused by the TSCM concept when implementing GSCM concept. Providing proper knowledge, training programs and experience to the employees of the organization will help to avoid the impacts caused by TSCM concept. Introducing the new methods of reusing, recycling materials and packaging can avoid the waste of raw materials and resources. This also can be considered as a solution for the impacted problems of TSCM. Preceding the ways of cost effective and efficiency will help to cover the costs charged for implementation and maintaining process. Increasing the revenues and decreasing the liabilities will help in cost effective process. Maximization of the market share and the market growth within the industry will be a massive encouragement for a successful GSCM of an organization or an industry. (Dashore and Sohani, 2021)

Thus, above mention factors can be considered as the solutions for the impact of TSCM on GSCM.

Methodology

This study focuses on the challenges encountered by Traditional Supply Chain Management with the introduction of Green Supply Chain Management. As mentioned, in most of the previous studies the concept of GSCM was introduced in order to address the universal problems such as environmental degradation and depletion of resources (Rahman et al., 2020). The objective of this

study is to analyze the impact of Traditional Supply Chain Management on Green Supply Chain Management and to identify how the changes occurred in the production process.

In this manner as the first step of the review, it clearly describes the concept of Traditional Supply Chain Management and how it firstly introduced. Regarding the second step, the review depicts the challenges in TSCM. Evolution of Green Supply Chain Management due to the challenging problems in TSCM and a clear introduction about the GSCM concept is described in the third part of the review. Next part depicts the barriers and the challenges that encounter when implementing the concept of GSCM. As the fifth part, the review describes the impact of TSCM on GSCM and in the last part of the review it illustrates the suggested solutions.

The study adopts a qualitative approach as well as a systematic literature review since the qualitative approaches targeted on revealing the etiquettes and the perception of the society with reference to a particular topic. This type of approach encapsulates not only “what” people think, but also “why” people think so. Qualitative approach research allow revealing and probing a particular problem in-depth and it helps to reach a comprehensive conclusion. A Systematic Literature Review (SLR) can be considered as a type of literature review that aims to address a problem by analyzing, critically evaluating and integrating the collected secondary data. On this wise, this study also can be premeditated as a SLR since it is mainly based on identifying, evaluating and integrating the secondary findings.

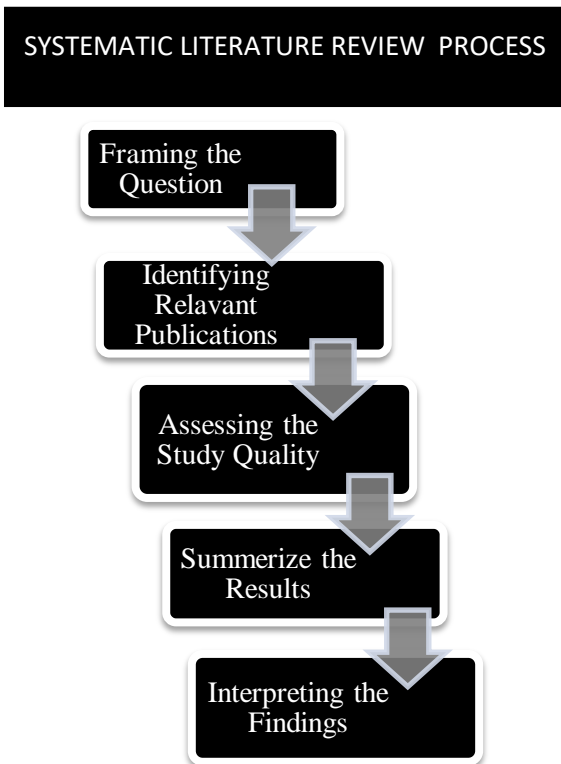


Diagram 2. Systematic Literature Review Process
Source: Author Designed

Furthermore, Given that the study is a highly conceptual and the concept of eco-sustainable supply chain management is still a potential concept in industrial arena, data collection was done mainly through document analyzing. Though it is an obstruction for data collection process, the findings provide considerable facts to substantiate the objective of the study. Throughout the study 30 review papers published between 2000-2019 including the journals where business and economic management institutions, operational management and logistics academics and the papers published by logisticians and economic consultants were used to gather data and they were analyzed to achieve the objective of the study.

Barriers to Implement Gscm

The execution process of the GSCM concept within industries and organizations caused some significant barriers and it is necessary to overcome those barriers to implement a successful GSCM. It is obvious

that it costs higher amounts for implementation process and the maintaining process of the GSCM concept deals with the eco-sustainable practices (Series and Science, 2019). Industries have to introduce new recyclable, reusable and refurbish methods in order to execute a complete GSCM process within the industry (Bhattacharjee, 2017). Thus, it takes higher costs to introduce these new methods and those introduced method should be maintained properly in order to protect them from the damages which can occur due to various conditions (Maryniak, 2019). Machines and other equipment should be upgraded when it is required. The expenses for maintenance are also high. Most of the employees in the industries are experienced in working with the conventional system. This can be a reason for rejecting the new GSCM concept within an industry. This new concept includes various kinds of advanced technological concepts and due to the lack of knowledge regarding the advanced technologies among the employees causes a main reason for lack of acceptance of advanced technologies (Jayant and Azhar, 2014). Surveys state that this GSCM concept was firstly introduced in 1994 and in this era the technological advancement was very poor. But as mentioned above, this new concept consists of many technological equipment. Given that, lack of integrated IT systems was a massive problem when implementing a GSCM. As this is a totally new concept for the manufacturing industry, all the industries and the organizations feared that their own industries will face failures in the manufacturing process (Rahman et al., 2020). Because of that they had worked hard for the survival in the industry and to maintain the competitiveness of the industry with the rival industries. If the new concept is not working properly, organizations face losses instead of having profits. (Dashore and Sohani, 2021). Unlike in conventional supply chain management, to implement a GSCM

concept within an organization it is necessary to have green developers, green architects, green consultants and experts. Without having aids from those experts, organizations cannot implement a successful GSCM. It is known that these consultants are very rare in the field and the cost to procure such experts is very high. Such that, lack of green consultants is a huge problem to implement a GSCM (Maryniak, 2019). Top management should involve when implementing the new concept as they should instruct and motivate the employees for a successful implementation. Top managers should provide necessary resources when it is needed. If the top managers ignore their responsibilities, issues can arise when implementing the new concept. Lack of commitment of the top managers and lack of resources are other major problems that have to be encountered while implementing the GSCM concept (Dashore and Sohani, 2021).

Thus, above mentioned facts depict the barriers when implementing the concept of GSCM within an organization.

Conclusion

Supply chain management is the process of converting raw materials in to finished goods and services and delivering them to customers in a quick delivery time (Parkhi, 2015). Traditional Supply Chain Management was introduced in early 1980's. This TSCM concept was a main reason for the profit maximization, development of the interrelationships, maximization of operating performance and management within the organization (Stock, Boyer and Harmon, 2010b). Not only that but also this TSCM concept was a major reason for some environmental problems which affect socially and economically for the industries and organizations. Environmental degradation, wastage of energy, higher costs, need for quality products and services and unforeseen delays are some problems that

arise when practicing the TSCM concept. To overcome these problems logisticians, consultants and experts introduced the concept of GSCM in 1994 (Shan and Wang, 2018).

GSCM concept can be defined as the process of green planning, green developing, green making, green delivering and returning (Luthra et al., 2011). GSCM mainly focuses on returning products and materials in order to forwarding them to recycling, remanufacturing and refurbishing or safe disposal. Consultants recognized that above mentioned problems can be reduced after implementing the new concept of GSCM. But some other problems occurred when implementing the concept of GSCM. Lack of integration of IT systems, cost of implementing and maintaining is comparatively high, lack of green consultants and experts, lack of resources, lack of technical knowledge and experience, lack of adequate environmental measures and uncertainty in competing with the rival manufacturing industries are some problems that have to be overcome while implementing process of the GSCM (Dashore and Sohani, 2021). Those problems should be solved for the maintenance of a successful GSCM process.

After the transmission of TSCM to GSCM organizations and the industries should consider about the impact of TSCM on GSCM and some reasons were recognized by the consultants. Competition with rival industries, reluctance of adapt to the change, fear of failure, unawareness of customers, employees and suppliers, non-availability of bank loans to encourage the green concept, lack of understanding about remanufacturing process and implementing the efficient materials and wastage management systems are the recognized impact of TSCM on GSCM (Zulkefli, Mahmud and Zainudin, 2019). To overcome these impacts some solutions can be recognized.

Improving the remanufacturing process, financial incentives will encourage the GSCM process, providing proper understanding to the employees, introducing new methods for remanufacturing process, improving the quality of the products, cost effectiveness and efficiency and increasing the market share and the growth in the industry are some proposed solutions to overcome the above mentioned impacts.

With the technological upheaval in 21st century; all the problems, barriers and the impacts caused by the GSCM and TSCM were reduced and some vanished and now majority of the industries and the organizations are practicing the concept of GSCM because of its massive advantages to the industry. Practicing GSCM can lead to advantages such as resource utilization decrement, waste decrement, the emission decrement and other advantages gained from the TSCM in an advanced manner.

Finally, if the industries and organizations are capable of practicing GSCM concept, those organizations can compete with rival industries and exist in the market and can achieve the highest position in the industrial arena.

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