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Importance of Triple-A and GSCM Practices for Organizational Performance: Qualitative Insights from a Developing Country

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Abstract

Best supply chains should not only be fast and low-cost but they should also have Triple-A capabilities (Agility, Adaptability and Alignment). Literature reveals that Triple-A capabilities are positively related with the Green Supply Chain Management (GSCM) practices. Literature also discloses that GSCM practices are a viable option to decrease the environmental effect of industrial processes while at the same time it can help to improve the organizational performance by reducing the cost of operations. Literature proposes that more studies on environmental practices and organizational performance are required, especially in the context of developing countries. Therefore, this study aimed to explore the relationships between Triple-A, GSCM Practices and organizational performance in the context of a developing country i.e. Pakistan. A qualitative research methodology was followed keeping in view the post-positivist research paradigm. At first stage, literature was reviewed and 5 preliminary interviews were conducted by using purposive sampling and snowball sampling to develop a conceptual framework for establishing the association between Triple-A, GSCM Practices and organizational performance. At second stage, Semi-structured in-depth interviews of 12 senior level managers of the leading pesticide firms of Pakistan were conducted with the help of purposive sampling and snowball sampling to validate the conceptual framework. Interviews were recorded and then transcribed to extract the themes to validate the conceptual framework and to develop the recommendations for the future research. The findings of the in-depth interviews revealed that Triple-A capabilities are vital for the success of an organization, especially these capabilities are very important to mitigate the negative effects of any unexpected occurrences like floods, earthquake and pandemics like COVID-19 etc. The management of the pesticide companies of Pakistan have effectively responded to the threat of COVID-19 with the help of Triple-A capabilities. Study results indicated that Triple-A capabilities have positive effect on all domains of organizational performance (Operational, Economic, Environmental and Social). It was also confirmed that Triple-A capabilities are necessary for the successful application of GSCM Practices. GSCM practices also have a positive influence on all domains of organizational performance. Finally, it was also affirmed that GSCM practices mediate the association between Triple-A capabilities and organizational performance. It is concluded that Triple-A, GSCM Practices and Organizational Performance are linked with each other. Triple-A capabilities are positively linked with the organizational performance. These capabilities also are also positively associated with the GSCM Practices. Moreover, GSCM Practices are positively associated with the Organizational Performance. Furthermore, GSCM Practices mediate the association between Triple-A capabilities and organizational performance. It is recommended to conduct the quantitative and mixed nature of researches in different countries by focusing various organizations to increase the applicability of this study.

Keywords: *Triple-A, Agility, Adaptability, Alignment, Green Supply Chain Management (GSCM) Practices, Organizational Performance, Pesticide Firms, COVID-19, Pakistan*

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1. Introduction

Over the past few years (since 2019), organizations have shown high level of concerns regarding the environmental effect of their industrial operations (Vanalle, Ganga, Godinho Filho, & Lucato, 2017). After industrial revolution, pollution has emerged as a major issue for the world (Sarkis, Zhu, & Lai, 2011). The term "green" has changed from a buzzword and becomes part of corporate's policy and implementation plan. In supply chain management network, the term "green" has been recognized as, e.g. environmental awareness, corporate social responsibility (CSR) and environmental impact prevention. An integration of "green" concept in a supply chain is called "green supply chain management (GSCM)", "environmental supply chain management (ESCM)" and "sustainable supply chain management (SSCM)" (Seuring, 2004). In this study, the term GSCM is used. In general, GSCM practices are a viable option to decrease the environmental effect of industrial processes while at the same time it can help to improve the organizational performance by reducing the cost of operations (Zhu, Tian, & Sarkis, 2012).

Organizations applying GSCM practices can be evaluated on four aspects of organizational performance, which are "environmental, economic, operational and social performances". "Environmental performance", "economic performance", and "operational performance" are considered as the core structure of organizational performance (Azevedo, Carvalho, & Machado, 2011; Zhu, Sarkis, Cordeiro, & Lai, 2008). Unlike other performances, social performance, which includes practices i.e. social project initiatives, stakeholders' welfare program and provision of educational opportunities for employees of an organization, is mostly ignored from studies related to GSCM (Govindan, Khodaverdi, & Jafarian, 2013; Qorri, Mujkić, & Kraslawski, 2018). In addition, the literature proposes that more studies on environmental practices and organizational performance are required, particularly in the case of less developed countries for increasing the generalizability of the earlier research findings (Vanalle et al., 2017). A gap exists in the less developed countries, as researches on the association between GSCM and performance are generally carried out in advanced countries (Geng, Mansouri, & Aktas, 2017). Therefore, this research tries to probe the four domains of organizational performance, i.e. "environmental, economic, operational, and social performance" in a developing country i.e. Pakistan. This study is an important contribution to the existing state of literature because it is the first study to investigate the relationship of Triple-A, GSCM Practices and Organizational Performance in the context of a developing country by focusing the pesticide sector.

"Agility", "adaptability", and "alignment" are considered as dynamic competencies for competitive advantage to achieve environmental sustainability and are the basis for sustainable operations management (Van Wassenhove, 2005). Improving agility, increasing adaptability, and promoting alignment are the best practices in implementing green supply chains (Nikbakhsh, 2009). Agility, adaptability, and alignment were also suggested as key strategies to sustain green practices in the supply chain (Sundarakani et al., 2010).Therefore, the first aim of this research is to present a conceptual framework regarding Triple-A, GSCM practices and organizational performance.

Pakistan is mainly an agricultural country, which uses large amount of pesticide for the improvement of farm productivity. Supply chain of the pesticide industry largely posts a

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negative effect on the environment. (Mahmood, Imadi, Shazadi, Gul, & Hakeem, 2016). Large amounts of pesticides pollute the environment and is a great concern for environmental sustainability (Mahmood et al., 2016). Therefore, pesticide firms operating in Pakistan were the target population, as a case study, to validate the conceptual framework (Figure 1) of this research. Therefore, the second aim of this research is to test the conceptual framework (Figure 1) regarding Triple-A, GSCM practices and organizational performance with the help of qualitative techniques by focusing the pesticide sector of Pakistan.

2. Review of Literature

To achieve the first research aim, a detailed review of literature was conducted with respect to "Triple-A", "GSCM practices", and "organizational performance" regarding their importance and relationships. The findings of literature review are provided from 2.1 to 2.4.

2.1 Triple-A Supply Chain

A productive and profitable supply chain does not always guarantee sustainable competitive advantage. Successful supply chains must have agility, adaptability, and alignment (H. L. Lee, 2004). All three dimensions are equally important in the supply chain. From the three A-letter words (i.e., agility, adaptability, and alignment), Lee coined the term "Triple-A". Best supply chains quick, low-cost as well as they have agility, adaptability, and alignment, which are the three major characteristics of a modern supply chain (H. L. Lee, 2004). The three major characteristics are collectively known as the Triple-A of supply chain (Jangga, Ali, Ismail, & Sahari, 2015). Agility refers to the way to smoothly and cost-effectively react as fast as possible to unexpected changes in supply or demand. Unexpected changes are e.g. natural disasters, epidemics like COVID-19, and computer viruses. Adaptability refers to adjust with the changing trends in politics, demographics, and technology. Alignment refers to understanding the thinking and benefits of all participating organizations in the supply chain. Triple-A model has attracted the attention of academia and industry. The model was initiated by H.L. Lee who provided the term "Triple-A" (Jangga et al., 2015). The combination of the three dimensions can successfully drive supply chain towards sustainable competitive advantage (H. L. Lee, 2004).

2.2 Triple-A and Organizational Performance

Triple-A supply chains are agile, adaptable, and aligned (H. L. Lee, 2004). The most successful firms are such firms which quickly react to "short-term changes in immediate and ultimate customer demands (agility)", adjust to "long-term changes in economies and markets by restructuring the supply chain (adaptability)", and "integrating and coordinating business processes resulting in an equitable sharing of risks, costs, and benefits with all participating partners (alignment)" (Dwayne Whitten, Green, & Zelbst, 2012). Moreover (Dwayne Whitten et al., 2012) empirically tested that the "Triple-A capabilities: agility, adaptability, and alignment" have a statistically significant and positive impact on the organizational performance.

Based on an empirical test conducted on Triple-A model, the results revealed that "Triple-A supply chain strategy" has a positive impact on "supply chain performance". Consequently, "Triple-A and supply chain performance" posted a positive impact on the organizational performance (Dwayne Whitten et al., 2012).

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Feyissa and Sharma (2016) concluded through an empirical investigation that a latest "supply chain" is required to exhibit three important characteristics: "agility, adaptability and alignment", jointly referred as "Triple-A of supply chain". Moreover, they also pointed out that supply chain characteristics (Triple-A) and firm performance are related with each other.

2.3 Triple-A and GSCM Practices

Internal competencies and capabilities (like Triple-A capabilities) can give a better explanation of different levels of implementation of GSCM practices than external pressures on a supply chain (Bowen, Cousins, Lamming, & Farukt, 2001). Organizations' internal capabilities facilitate the adoption of environmental management practices (S.-Y. Lee, 2008). In the supply chain context, today's competition is not "firm versus firm" but "supply chain versus supply chain." Therefore, the best supply chains are focusing on capabilities lying in the supply chain level rather than resources residing within the firms. "Agility, adaptability, and alignment" substantially do their contribution for improving the competitive abilities of supply chains (Ketchen Jr & Hult, 2007).

Successful implementation of "Supply Chain Management" (SCM) needs the management of internal and external activities of the "supply chain" (Vickery, Jayaram, Droge, & Calantone, 2003). GSCM practices are categorized into "internal" and "external" dimensions (Chiou, Chan, Lettice, & Chung, 2011; Rao, 2002). Compliance, commitment, and support are referred as "Internal GSCM practices" taking place inside an organization (Zhu, Sarkis, & Geng, 2005). "Greening suppliers", "green purchasing", and "cooperation with customers" are the part of "External GSCM practices" (Bowen et al., 2001; Chiou et al., 2011; Green, Morton, & New, 1998).

2.4 GSCM Practices and Organizational Performance

Several studies found that "Internal GSCM Practices" are positively related to "Environmental Performance" (Yang, Hong, & Modi, 2011; Zhu & Sarkis, 2004). Some researchers also provide proof that some facets of "External GSCM Practices" are associated with "Environmental Performance" (Green Jr, Zelbst, Meacham, & Bhadauria, 2012).

Above mentioned studies observed the effects of "GSCM Practices" on "Economic and "Environmental Performance". But, "Social Performance" was rarely investigated within the areas related to "GSCM Practices" (Govindan et al., 2013; Qorri et al., 2018). Whereas, increase in the awareness on "Corporate Social Responsibility" requires an equal attention of social concerns in handling a supply chain (Qorri et al., 2018).

More positive image is displayed in the eyes of stakeholders i.e. customers, suppliers, society, employees, media and the government by decreasing damages to the environment by following the GSCM practices. This positive image is vital for customer, employees' satisfaction and loyalty (Hoffman, 2001).

Good environmental practices may improve the firms' relationships with all stakeholders (Testa & Iraldo, 2010; Xie & Breen, 2012). Therefore, this study has attempted to find the evidences in the support of "GSCM Practices" and "organizational performance" in terms of "environmental, economic, operational and social performance".

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In the light of literature stated above and then having preliminary interviews with 5 senior level managers of pesticide firms (Table 1), conceptual framework of this study was proposed (Figure 1).

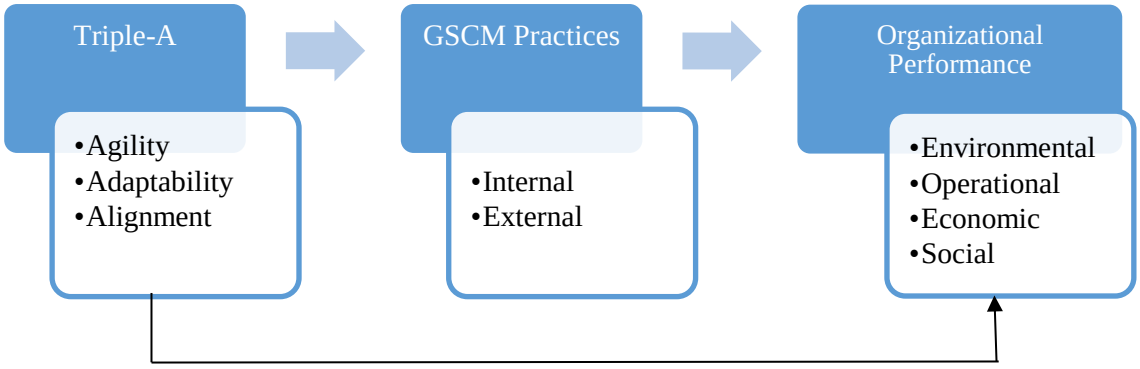

Figure 1. Conceptual Framework

3. Research Methodology

A qualitative research methodology was followed keeping in view the post-positivist research paradigm. At first stage, literature was reviewed and 5 preliminary interviews were conducted by using purposive sampling and snowball sampling to develop a research model for establishing the relationship between Triple-A, GSCM Practices and organizational performance. At second stage, Semi-structured in-depth interviews of 12 senior level managers of the leading pesticide firms of Pakistan were conducted with the help of purposive sampling and snowball sampling. Interviews were recorded and then transcribed to extract the themes to validate the conceptual framework and to develop the recommendations for future research.

At first stage, to develop a conceptual framework (Figure 1) regarding Triple A, GSCM practices and organizational performance, a comprehensive literature review was conducted along with preliminary interviews, with the help of purposive and snowball sampling method, with 5 senior level managers of two leading pesticide firms (Table 1), located in Industrial Estate, Multan, Pakistan. Those two firms were selected to obtain the preliminary information because they are famous for their excellent repute and professionalism within the business community of Industrial Estate, Multan, Pakistan. Over 100 research articles from peer reviewed journals were downloaded. The articles were downloaded by using the keywords such as: Triple-A, green supply chain management (GSCM) practices, organizational performance, pesticide firms and Pakistan. Content analysis was conducted on all downloaded articles for intellectualizing the conceptual framework (Figure 1). The information from the preliminary interviews revealed that GSCM practices take time for implementation and new firms as well as small or medium size firms find it very difficult to implement the GSCM practices. Therefore, pesticide firms with the following chracteristics were targeted and used as sample for data collection:

1. Pesticide firms having more than 50 employees
2. Pesticide firms being operational for more than 10 years

At second stage, purposive sampling and snowball sampling were used for conducting in-depth interviews with senior level managers to validate the conceptual framework (Figure 1). Senior level managers were selected on the basis of having at least 15 years of work

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experience in the pesticide sector and having at least a bachelor level qualification. Each senior level manger was interviewed upto an hour. Each interview started with an introduction between the researcher and the respondent. Then the purpose of the study and conceptual framework were briefly explained to the respondent. After which semi-structured in-depth interviews were conducted. Interviews were recorded and then transcribed to extract the themes to validate the conceptual Framework (Figure 1) and to develop the recommendations for the future research. Qualitative data derived through the interviews were analysed by applying content analysis technique. After the conduct of 10 interviews the information was started to repeat, therefore, interviews were stopped after the conduct of 12 interviews.

4. Results and Discussions

After the detailed literature review, preliminary interviews with 5 senior level managers were conducted (stage I). Profile of the respondent for stage 1 is provided below in Table 1:

Table 1. Profile of Interview Respondents (Stage I)

Sr. No.	Current Position	Qualification	Gender	Age (Years)	Pesticide Industry Experience (Years)
1.	Director Operations	Master	Male	38	16
2.	Chief Executive Officer (CEO)	Bachelor	Male	60	40
3.	Director Logistics & Operations	Master	Male	37	15
4.	Factory Manager	Bachelor	Male	48	27
5.	Chief Financial Officer (CFO)	Master	Male	44	24

To achieve the second research aim, in-depth interviews with 12 senior level managers were conducted after intellectualizing the conceptual framework of the study (Figure 1). This was done to qualitatively verify and prove the conceptual framework of the study (Figure 1). Profile of the respondent for stage 1I is given below in Table 2:

Table 2. Profile of Interview Respondents (Stage II)

Sr. No.	Current Position	Qualification	Gender	Age (Years)	Pesticide Industry Experience (Years)
1.	Chief Executive Officer (CEO)	Bachelor	Male	60	40
2.	President	Master	Male	64	42
3.	Director Operations	Master	Male	38	16
4.	Director Logistics & Operations	Master	Male	37	15
5.	Manager Logistics and Distribution	Bachelor	Male	55	32
6.	Factory Manager	Bachelor	Male	48	27
7.	Chief Financial Officer (CFO)	Master	Male	44	24
8.	Manager Registration & Technical	Master	Male	50	26
9.	National Sales Manager	Master	Male	51	27
10.	Business Manager	Master	Male	47	21
11.	Executive Manager	Master	Male	51	26
12.	Warehouse Manager	Bachelor	Male	37	16

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Table 2 shows that all respondents were the senior level managers. Four out of twelve respondents (33%) were having a bachelor degree whereas eight respondents (66%) were having a master degree. All respondents were male as Pakistan has a male dominant society and a majority of females usually work as house wife or in education or in health sector. The youngest respondent was of 37 years of age, whereas the oldest respondent was of 64 years of age. The average age of respondents was 48.5 years. The lowest level of the experience of the respondents was 15 years, whereas the highest level of experience of respondents was 42 years. The respondents had 26 years of working experience, on average, in the pesticide sector.

The findings of the in-depth interviews revealed that Triple-A capabilities are vital for the success of an organization, especially these capabilities are extremely important to mitigate the negative effects of any unexpected occurrences like floods, earthquake and pandemic like COVID-19 etc.

The management of the pesticide companies of Pakistan have effectively responded to the threat of COVID-19 with the help of Triple-A capabilities. Top level managers explained that they were in contact with the suppliers, worldwide, and they lifted some of the raw materials by air to combat the threat of COVID-19 by effectively managing their supply chain, which is a perfect example of agility. One of the senior level managers emphasized that an organization cannot become a successful organization if that is not agile. Therefore, agility is one of the elements of success in the current era of COVID-19.

Senior level managers also explained that they are using the latest technology and continuously updating the technology and work methods to reduce the emissions and negative environmental effects of their operations as well as to become cost effective. They are also using solar energy, wherever possible to reduce their energy costs. Therefore, it is inferred that adaptability focusing the GSCM practices also exists in the pesticide sector of Pakistan.

Senior level managers also explained that they are continuously in contact with their suppliers, logistic partners, distributors, retailers and customers. They regularly hold seminars and meetings with all stakeholders to inform them about the latest changes in the product and technology and to get feedback from them. Therefore, pesticide sector of Pakistan is well aligned with its stakeholders.

Senior level managers of Pesticide Sector of Pakistan also explained that they are following the GSCM practices to reduce the emissions and negative environmental effects of their operations as well as to become cost effective and more competitive in the market. They told that all stakeholders, including government, are more concerned about safeguarding the environment. Therefore, they are using latest technology, latest raw materials, and solar energy to apply the GSCM practices successfully. They are now using more environment friendly raw materials as compared to 10 years before. They are also using the eco labelling. They are ensuring the minimum noise and fumes with the help of latest machines, operations methods, and technology to safeguard the environment and to take care about the health of their employees. Therefore, pesticide sector of Pakistan is applying the concept of GSCM practices successfully.

Senior level managers were of the view that Triple-A capabilities have positive effect on the all domains of organizational performance (Operational, Economic, Environmental and

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Social). They also confirmed that Triple-A capabilities are very important for the successful execution of "GSCM Practices" in true letter and spirit. "GSCM practices" also positively affect all domains of organizational performance. Finally, they also affirmed that "GSCM Practices" mediate the relationship between Triple-A capabilities and organizational performance. Therefore, conceptual framework, validated through the qualitative research findings, is illustrated in Figure 2.

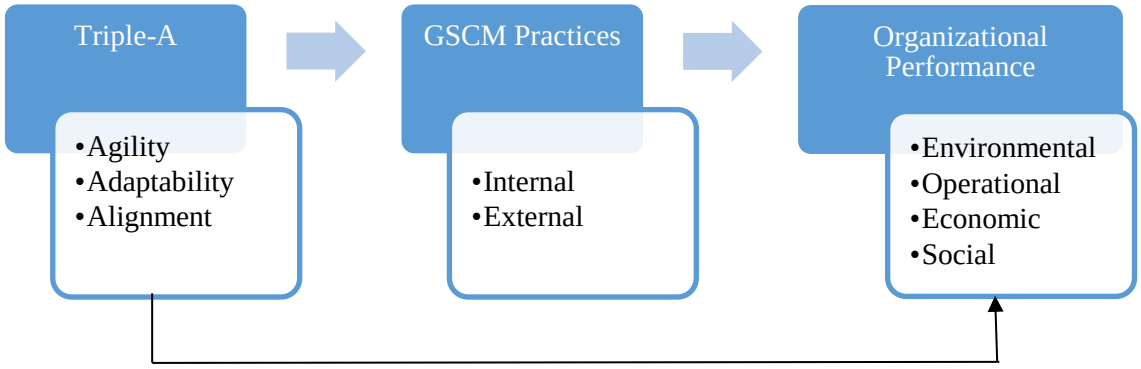

Figure 2. Validated Conceptual Framework

5. Conclusion

The findings of the in-depth interviews revealed that Triple-A capabilities are vital for the success of an organization, especially these capabilities are extremely important to mitigate the negative effects of any unexpected occurrences like floods, earthquake and COVID-19 etc. The management of the pesticide companies of Pakistan have effectively responded to the threat of COVID-19 with the help of Triple-A capabilities. Interview findings indicated that Triple-A capabilities have positive association with all domains of "organizational performance" i.e. "Environmental, Operational, Economic, and social performance". It was also confirmed that Triple-A capabilities are very important for the successful execution of "GSCM Practices". Moreover, "GSCM Practices" positively affect all domains of "organizational performance" i.e. "Environmental, Operational, Economic, and social performance". Finally, it was also confirmed that GSCM practices mediate the association between Triple-A capabilities and organizational performance.

Based on qualitative findings of this research, it is concluded that "Triple-A", "GSCM Practices" and "Organizational Performance" are linked with each other. "Triple-A capabilities" have a positive effect on the "organizational performance". These capabilities also have a positive effect on the "GSCM Practices". Moreover, "GSCM Practices" have a positive effect on the "Organizational Performance". Furthermore, "GSCM Practices: mediate the relationship between "Triple-A capabilities" and "organizational performance".

Based on the study findings, following recommendations are made to improve the organizational performance:

1. Triple-A capabilities (i.e., agility, adaptability, and alignment) should be well observed and given attention by managers to improve the Organizational performance.
2. Triple-A capabilities should be observed and given attention for the adoption of GSCM Practices.
3. Triple-A capabilities i.e. "agility, adaptability, and alignment" can help to improve the organizational performance through the mediation effect of GSCM Practices, therefore,

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Triple-A capabilities i.e. "agility, adaptability, and alignment" and GSCM Practices, both must be particularly focused by the practicing managers to improve the organizational performance.

The results of this study may be generalized to the firms operating in other countries but having similar characteristics like the large size pesticide firms operating in Pakistan. It is expected that these findings can be utilized in both developing as well as developed countries for the similar kind of firms. It is recommended to conduct the quantitative and mixed nature of studies in different parts of the world by focusing various industries to increase the generalizability of this study. Studies may also be conducted by collecting data from two different countries and then making comparison between both of them to broaden the managerial insight.

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