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Role of Green and Sustainable Supply Chain Management on Achieving Competitive Superiority A Case Study in Wasit Textile Factory

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Abstract

Purpose: This study aims at exploring the extent to which green/sustainable supply chain management (GSCM) and (SSCM) technologies contribute as two independent variables on enhancing the competitive superiority, as a dependent variable. *Design/methodology/approach:* In order to address the problem of the study, achieve its objective, and test its hypotheses, Wasit Textile Factory was selected as a field for the study, and a purposeful sample of 102 individuals was chosen, represented by the administrative leaders at the three occupational levels. In order to reach the results of the study, a questionnaire was used to collect data, and it was processed and tested hypotheses of the study using a number of statistical methods (SPSS.V 25, Amos V 25, Excel. V 13). *Findings:* The study found that relying on GSCM and SSCM techniques helps the Wasit Textile Factory to achieve competitive superiority. The study also recommends that the management of Wasit Textile Factory should pay attention to GSCM and SSCM and competitive superiority activities, and work to implement them properly through holding conferences and holding training courses for managers at various administrative levels in the organization to develop performance in the field of GSCM and SSCM and competitive advantage. *Originality/ Value:* The current study was distinguished from previous studies by linking several modern topics, namely GSCM, SSCM, and competitive superiority. Therefore, the current study is considered the first study according to the researcher's knowledge that addressed these variables together.

Keywords: GSCM, SSCM, Competitive Superiority.

Introduction

The problem of the study lies in the lack of interest in environmental protection by Iraqi business organizations (industrial or service) and using traditional supply chain that neglects environmental aspects and sustainability events, which increases in environmental pollution, product costs and costs necessary to treat environmental damage. This was also reflected in the increase in pressures on economic business organizations to reduce the pollution caused by their activities and the products they provide, which forced them to provide sustainable products using green raw materials and limit the depletion of natural resources to guarantee the right of future generations through the

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recycling or the possibility of recycling these resources after the end of their life cycle. As green and SSCM emerged as a scientific philosophy that aims to help the organization achieve profits and expand its market share by reducing environmental risks and impacts by adopting green and SSCM and standing on its implications in achieving the competitive advantage of the organization and improving its competitive superiority by linking these practices to achieving competitive superiority as the strategic objective that organizations seek. (Levin, 2022)

Accordingly, the study problem can be formulated in the form of questions, namely:

1. Does the GSCM affect achieving the competitive advantage in the Wasit Textile Factory?
2. Does SSCM affect achieving competitive advantage in the Wasit Textile Factory?
3. Is there an impact of the joint role of GSCM and SSCM in achieving the competitive advantage?

Research objective

Identifying the relationship nature between the GSCM and SSCM determine aspects of complementarity between them and their impact on achieving competitive superiority in Wasit Textile Factory.

Research hypotheses

H1: *GSCM significantly impacts competitive superiority.*

H1: a) *Internal environmental management significantly impacts competitive superiority.*

H1: b) *Cooperating with customers significantly impacts competitive superiority.*

H1: c) *Green design significantly impacts competitive superiority.*

H1: d) *Cooperating with suppliers significantly impacts competitive superiority.*

H1: e) *Investment recovery significantly impacts competitive superiority.*

H2: *SSCM significantly impacts competitive superiority.*

H2: a) *Sustainable purchase significantly impacts competitive superiority.*

H2: b) *Sustainable manufacturing a significant effect on competitive superiority.*

H2: c) *Sustainable transport significant significantly impacts competitive superiority.*

H2: d) *Sustainable storage significant significantly impacts competitive superiority.*

H2: e) *Sustainable reverse logistics significantly impacts competitive superiority.*

H3: *GSCM and SSCM have multiple significant effect on competitive superiority.*

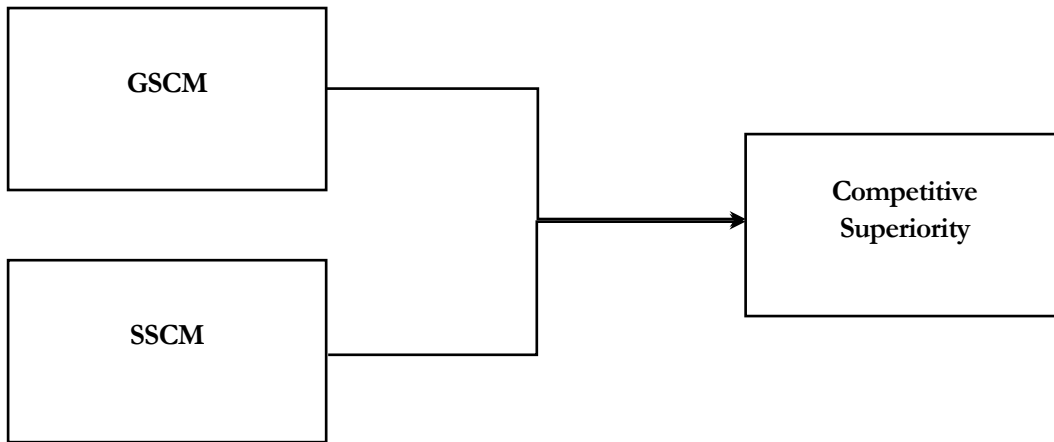


Figure 1: The hypothetical research model.

Literature Review

Green supply chain management (GSCM)

Over the last ten years, there has been a significant increase in the importance of supply chain management (henceforth SCM), with companies competing to improve their SCM practices and advancements in technology, logistics, and production. Additionally, there has been a growing focus on environmental protection and resource conservation in SCM. The term SCM was first coined by Oliver and Webber in the 1980s (Albers & Delfmann, 2000; Damodharan & Ahmed, 2022). Green supply chain management (GSCM) is a producing process and delivering finished products to end-users while minimizing environmental impact. In recent years, the importance of the supply chain relationship has increased, and GSCM has emerged from SCM in response to growing awareness of green practices. As competition intensified in the 1990s, organizations began to prioritize ethical and socially responsible practices in their supply chains. GSCM gained scientific attention in the mid-1990s and received the highest level of attention in 2010. Organizations are now developing environmental management strategies to comply with changing environmental requirements and reduce the environmental impact of their supply chain operations (Chin et al., 2015; Ruiz-Cabrera & Gí/4rkan, 2023)

The literature on GSCM has expanded due to the 1990s supply chain revolution and the 1980s quality revolution. This has led to a focus on environmental management in organizations, environmentally conscious manufacturing strategies, and SCM literature. The best practices for GSCM obviously require integrating business operations with environmental management. GSCM is gaining more attention from researchers and practitioners in operations and SCM. However, most studies on GSCM have been conducted in advanced countries such as Japan, Germany, Portugal, and the United Kingdom (Seman et al., 2012). To implement GSCM, organizations assess their suppliers' environmental performance and only form trade agreements with those who meet their standards. GSCM includes both reactive measures aligned with general environmental management programs and proactive practices such as reducing, reusing, remanufacturing, refurbishing, recovering, recycling, re-manufacturing, and implementing reverse logistics (Gajendrum, 2017; Pavolo & Chikobvu, 2022)

Over the past fifty years, supply chains have evolved from simple relationships of customer-supplier strategic collaborations with supply chain partners. In the last decade, environmental

concerns have become a priority not just for individual organizations but for the entire supply chain. GSCM involves practices that start from generating ideas and designing green products to purchasing, logistics services, manufacturing, and waste management. GSCM includes collaborative and monitoring practices for reaching the economic and environmental goals. Achieving these goals requires an integrated effort from all organization departments and all upstream and downstream supply chain partners. External parties are also required in external practices to cooperate with customers and suppliers (Saeed et al., 2018; Singh & Singh, 2022)

Environmental concerns have become increasingly important in recent years, driven by new legislation, laws, and regulations in various countries, as well as consumer marketing and environmental concerns (Tammela & Paganelli, 2016). GSCM is an extension of the EMS that aims to eliminate waste and reduce environmental impact throughout the supply chain. When the supply chain is fully implemented with GSCM practices, it becomes a friendly supply chain with the environment. GSCM is particularly important when increased business activity has harmful effects on the environment. Commercial organizations are adopting ethical and socially responsible measures in their daily business operations and recognizing the importance of green practices in their supply chains, which can result in a green supply chain when both EMS and SCM are adopted and implemented in their business practices (Burki, 2018; Abbassi et al., 2022)

GSCM involves using environmentally friendly inputs and creating outputs that can be reclaimed and reused, resulting in a sustainable supply chain. This not only preserves resources for future generations but also protects the natural environment, leading to a better and safer world. Implementing GSCM can also increase the performance of organizations by reducing costs, improving operational efficiencies, increasing flexibility, enhancing sales, improving customer value, and enhancing the societal image. However, implementing GSCM requires a high initial investment in advanced technologies, hiring and training staff. Integrating management environmental concepts into the entire supply chain is crucial to maximizing the benefits of GSCM and achieving competitive advantage (Niemann et al., 2017). This concept is illustrated in the figure below, which shows how to form a GSCM that reduces negative environmental impacts while achieving economic benefits for the organization. (Abdulhussain et al., 2023)

Sustainable supply chain management (SSCM)

The term SCM gained popularity in the 1990s, although organizations used terms like "logistics services" and "operations management" before then (Hugos, 2018). The supply chain is generally understood as a global network of suppliers, manufacturers, distribution centers, warehouses, and retailers which requires the delivering, and transportation of raw materials to customers (Al-juboury & Al-Nima, 2021; Caldera & Segade, 2022)

Industrial organizations face various pressures, including environmental concerns, resource limitations, product retrieval laws, expanding sales opportunities in secondary markets, and customer demands for environmentally friendly products. To address these pressures, organizations are adopting modern methods that can sustain their resources and operations, reduce negative environmental impacts and production costs, meet customer needs while ensuring environmental safety, and reduce the depletion of natural resources. This is necessary to ensure the right of future generations to benefit from these resources within the context of sustainable development (Keeki, 2018). The concept of SSCM has gained global interest, with

the first signs of interest dating back to the 1980s when the Canadian Committee for Environmental Conservation emphasized the need to consider its dimensions for the future of future generations. The International Union for Conservation of Nature issued a report in the early 1950s, which is considered a pioneer in current approaches related to the relationship between the economy and the environment (Taweel, 2012; Estok, 2022)

In the late 1960s to mid-1970s, the concept of development began to encompass social aspects, whereas previously it had focused solely on economic issues. The development process began to address poverty reduction, unemployment elimination, and inequality in distribution within a growing economy. From the mid-1970s to the mid-1980s, the concept of comprehensive development emerged, which focuses on all aspects of society and life. Its goals are based on improving the conditions of ordinary people, rather than solely increasing economic growth rates.

The dominant developmental feature addresses each aspect of society independently of other aspects. It provide treatment separately to each problem. This made this development unable to reach the societal desired goals and led to the promotion of the concept of integrated development, which means different aspects of development within the framework of sectoral and spatial integration (Chilean, 2019; Cortón-Heras et al., 2023)

Literature review shows that supply chain performance is not only measured through business operations but also through its impact on the environment and social systems. Therefore, if a sustainable supply chain is complete, environmental damage or social systems will not happen, and at the same time, it will achieve long-term profits (Kot, 2018). To sum up, SSCM emerged as a result of the increasing global environmental awareness due to the inefficient use of resources and the damage caused to the environment, in order to preserve the rights of future generations. SSCM is used when there is a focus on reducing the impact of an organization's supply chain on the environment and society. Some researchers suggest that this concept does not go far enough and instead, SSCM should be remembered as designing, organizing, coordinating, and monitoring supply chains to become truly sustainable with minimum expectations for a truly sustainable supply chain, which preserves economic viability while not harming social and environmental systems (Pagell & Shevchenko, 2014).

SSCM is highly important as it may provide benefits for all supply chain organizations, include reducing costs, promoting environmentally-friendly practices, and gaining a competitive edge (Saeed, 2019). Incorporating environmental management practices throughout all stages of the supply chain is essential not only for creating a more eco-friendly supply chain, but also for boosting profits and market share, ultimately leading to a competitive edge (Semán et al., 2012). The growing importance of SSCM has attracted numerous scholars and researchers to take an interest in this topic with the aim of understanding effects of SSCM on the society and environment. Researchers, over the years, have attempted to study and examine the SSCM, environmental and economic dimensions were the focus of most of the studies and surveys, while few studies have focused on the social dimension (Mani, 2018).

Some scholars have shown the preference of numerous consumers to purchase products from organizations that are ecofriendly and paid more attention on society. Stakeholders and customers in the local community focus on the service or final product, without discriminating between supply chain organizations. Therefore, it is crucial for all organizations to adhere to the same regulations in order to prevent any adverse effects on the "leading organization" and other partners. This also implies that the leading organization

bears responsibility for its subsidiary organizations as they can impact its image and reputation. This is one reason why SSCM is gaining increasing popularity and importance (Stroumpoulis et al., 2021).

Competitive supremacy

Modern organizations are confronted with significant challenges, including the rapid expansion of information technology, the establishment of ISO standards, the World Trade Agreement, and the ever-changing demands and preferences of customers. As a result, organizations must continuously discover competitive advantages that can effectively generate revenue and profits by drawing in customers and shaping their perceptions through the creation and provision of highly beneficial products (Al-zoubi, 2016).

Competitive supremacy is a legitimate aspiration for all business organizations in order to develop their competitive capabilities by identifying the strengths and weaknesses of their resources and working to highlight their strengths and turn them into competitive advantages to confront competing organizations and thus achieve competitive superiority. It is also the eternal battle in any field to obtain benefits, as each organization develops a strategy in order to create and maintain a competitive advantage and therefore it focuses on creating new advantages that would result in higher levels of customer's satisfaction when compared to competitors (Raouf, 2020). In the contemporary management literature, competitive supremacy has gained great importance due to the dynamic competition witnessed by the business environment as a result of the information technology revolution, knowledge and momentum towards focusing on the customer, as most organizations strive to achieve differentiation in the business environment over the rest of the existing organizations and their competition. Some researchers emphasize the importance of competitive superiority as the ability of the organization to achieve performance in a specific way or in multiple ways (Jasim et al., 2020). The importance of the competitive advantage is also required in the organization, because the advantage is what distinguishes the organization from its competitors, as it contributes to higher prices, increased customers and brand loyalty (Teguh et al., 2021). The competitive advantage grows as the results of the benefits that the organization can create for its customers, where the value becomes greater than the capital spent to create the advantage (Hifza & Aslan, 2020). Competitive superiority at the present time is of great importance to management as a result of the turbulent business environment and fundamental changes at the local and global levels due to technological development, the development of information systems, knowledge, means of communication and the spread of global trade. All these reasons drive business organizations to build competitive priorities aimed at achieving competitive superiority (Al-Faraji & Al-Rabiawi, 2021). Where the change in the economic model, the rapid shift in consumer preferences, and the evolution of technology were among the factors that required textile companies to have new competitive dynamics and flexibility, both in terms of products, as well as production processes and management structures (Araújo et al., 2019).

Competitive superiority has become a significant topic of interest in modern management due to the significant changes in the local and global business environment brought about by the information technology and knowledge revolution, communication revolution, and general liberalization of global trade. It has been suggested that organizations can achieve competitive superiority by leveraging competitive advantages, which are often based on comparative advantages. The real challenge has become since the mid-nineties of the twentieth century is how to convert competitive advantages into superiority. Yet, the organization is required to

have a competitive advantage, but the most important thing is to keep it maintained (Chaton & Guillerminet, 2013). To sum up, competitive superiority is a skill, technology or a distinct resource that the organization possesses and is difficult to obtain or imitate from competing organizations, as well as providing more effective and efficient products or services to customers, which enables it to compete, achieve profits and increase its market share by focusing on the dimensions (cost, quality, flexibility, delivery and creativity).

Methodology

This paragraph diagnoses the problems and determines the availability of green supply chain practices and their impact on the competitive superiority of the organization, as well as the extent to which SSCM practices are applied and their implications for competitive superiority in Wasit Textile Factory.

Instrument

To achieve this goal, a field survey was conducted through a checklist prepared based on previous literature, and it included specific paragraphs on green and SSCM. The competitive superiority included open-ended questions about problems of its dimensions (cost, quality, delivery, flexibility, creativity) so that the opinion of the respondents is not restricted by ready-made and specific phrases that do not enable them to express their point of view freely, and it also provides the researcher with a comprehensive vision of the real problems in an accurate manner. While reviewing previous studies and literature it was found that there is no study, whether in Iraqi or other organizations, especially in the field of textile industries which combines GSCM, and SSCM, and competitive superiority in one hypothetical model, which indicates the existence of a knowledge gap to be bridged and which tries to recover the relationship between the variables.

Sample and context

The field of study is represented in the Wasit Textile Factory, in order to test the study model for several reasons, foremost among which is the strategic importance of the Wasit Textile Factory in supporting sustainable development and the need of the industry sector for in-depth studies to improve the reality of the products and services it provides, as the Wasit Textile Factory is one of the factories that advance with the country's economy.

A purposeful sample was chosen in this study. They are individuals who have experience and knowledge of the company's activities and operations to ensure the benefit of the accurate and useful information provided by them, in addition to the powers they enjoy in making decisions that may contribute to making serious radical changes in the company's overall activities and thus the possibility of obtaining the ideas and proposals that enhance the importance of the study.

Results and Discussion

Hypotheses testing

H1: *GSCM significantly impacts competitive superiority.*

Table 1 shows that GSCM significantly impacts competitive superiority. It is ascertained by the standard value parameter which has reached (0.78), and this means that the GSCM affects competitive superiority by (78%) at the level of the textile Factory. The competitive superiority will increase by 78% in the event of increasing interest in GSCM by one unit. The value of the

impact coefficient is a notably significant value, because the critical ratio (C.R.) reached 12.448 which is at the probability level significant as shown in Table 1.

Table 1 shows that the coefficient (R^2) has reached (0.61). It means that the occurring changes in competitive superiority are due 61% to the change in GSCM, and the remaining 39% are resulted by other variables not included. This result indicates GSCM has significant impact on competitive superiority at the level of the textile Factory. Therefore, the first hypothesis is proved.

Table 1. The impact of GSCM on competitive superiority

Path		Standard regressive weights	Non-standard rating	Standard Error	Critical Ratio	P. Value
Green Supply Chain Management	---> Competitive Superiority	.778	1.090	.088	12.448	***
Green Supply Chain Management	---> IEM	.696	.845	.087	9.754	***
Green Supply Chain Management	---> IR	.743	1.089	.098	11.170	***
Green Supply Chain Management	---> GD	.717	.917	.089	10.329	***
Green Supply Chain Management	---> CC	.765	1.142	.096	11.922	***
Green Supply Chain Management	---> CS	.699	.998	.102	9.815	***
Competitive superiority	---> LC	.700	.610	.062	9.839	***
Competitive superiority	---> QU	.706	.686	.068	10.026	***
Competitive superiority	---> FL	.830	1.108	.074	14.976	***
Competitive superiority	---> DE	.899	1.509	.073	20.675	***
Competitive superiority	---> IN	.806	1.086	.079	13.708	***

IEM= Internal Environmental Management, IR= Investment Recovery, GD= Green Design, CC= Cooperate with Customers, CS= Cooperation with Suppliers, LC= Lowest Cost, QU= Quality, FL= Flexibility, DE= Delivery, IN= Innovation.

H1: a) *Internal environmental management significantly impacts competitive superiority.*

Table 2 shows that the internal environmental management dimension has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.23. To put it the other way, the internal environmental management dimension affects the competitive superiority by 23% at the level of the textile Factory. This means a one unit deviation from the internal environmental management dimension in the textile Factory leads to a change in competitive superiority by 23%. It is a moral value as the critical ratio (C.R.) shown in Table 2 amounting to 2.937 which is significant value at a significant level 0.003. Hence, the first sub-hypothesis is proved.

1 H: b) *Cooperating with customers significantly impacts competitive superiority.*

Table 2 shows that the cooperating with customers dimension has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.25. To put it the other way, the cooperating with

customers dimension affects the competitive superiority by 25% at the level of the textile Factory. This means a one unit deviation from the cooperating with customers dimension in the textile Factory leads to a change in competitive superiority by 25%. It is a moral value as the critical ratio C.R.) shown in Table 2 amounting to 3.023 which is significant value at a significant level 0.003. Hence, the second sub-hypothesis is proved.

H1: c) *Green design significantly impacts competitive superiority.*

Table 2 shows that green design dimension has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.18. To put it the other way, the green design dimension affects the competitive superiority by 18 % at the level of the textile Factory. This means a one unit deviation from the green design dimension in the textile Factory leads to a change in competitive superiority by 18%. It is a moral value as the critical ratio C.R.) shown in Table 2 amounting to 2.233 which is significant value at a significant level 0.026. Hence, the third sub-hypothesis is proved.

H1: d) *Cooperating with suppliers significantly impacts competitive superiority.*

Table 2 shows that cooperating with suppliers has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.19. To put it the other way, cooperating with suppliers dimension affects the competitive superiority by 19 % at the level of the textile Factory. This means a one unit deviation from the cooperating with suppliers dimension in the textile Factory leads to a change in competitive superiority by 18%. It is a moral value as the critical ratio C.R.) shown in Table 2 amounting to 2.499 which is significant value at a significant level 0.012. Hence, the fourth sub-hypothesis is proved.

H1: e) *Investment recovery significantly impacts competitive superiority.*

Table 2 shows that the dimension of investment recovery has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.22. To put it the other way, investment recovery dimension affects the competitive superiority by 22 % at the level of the textile Factory. This means a one unit deviation from the cooperating with investment recovery in the textile Factory leads to a change in competitive superiority by 22%. It is a moral value as the critical ratio C.R.) shown in Table 2 amounting to 2.770 which is significant value at a significant level 0.006. Hence, the fifth sub-hypothesis is proved.

Table 2. The impact of the GSCM dimensions on competitive superiority

Path	Standard regressive weights	Non-standard rating	Standard Error	Critical Ratio	P. Value
Internal environmental management ---> Competitive superiority	.227	.264	.090	2.937	.003
Cooperate with customers ---> Competitive superiority	.247	.232	.077	3.023	.003
green design ---> Competitive superiority	.180	.200	.090	2.233	.026
Cooperation with suppliers ---> Competitive superiority	.192	.189	.076	2.499	.012

Investment recovery	--->	Competitive superiority	.217	.209	.075	2.770	.006
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H2: *SSCM significantly impacts competitive superiority.*

Table 3 shows that SSCM significantly impacts competitive superiority. It is ascertained by the standard value parameter which has reached (0.82), and this means that the SSCM affects competitive superiority by 82% at the level of the textile Factory. The competitive superiority will increase by 82% in the event of increasing interest in SSCM by one unit. The value of the impact coefficient is a notably significant value, because the critical ratio (C.R.) reached 14.254 which is at the probability level significant as shown in Table 3. Table 3 shows that the coefficient of determination (R^2) has reached (0.67). It means that occurring changes in competitive superiority are due 67% to the change in SSCM, and the remaining 33% are resulted by other variables not included in the study model. This result indicates SSCM has significant impact on competitive superiority at the level of the textile Factory. Therefore, the second hypothesis is proved.

Table 3. The impact of SSCM on competitive superiority

	Path		Standard regressive weights	Non-standard rating	Standard Error	Critical Ratio	P. Value
Sustainable supply chain management	--->	Competitive superiority	.817	1.008	.071	14.254	***
Sustainable supply chain management	--->	SC	.724	.975	.092	10.538	***
Sustainable supply chain management	--->	RL	.675	.990	.108	9.202	***
Sustainable supply chain management	--->	ST	.796	1.126	.085	13.223	***
Sustainable supply chain management	--->	SM	.684	.852	.090	9.426	***
Sustainable supply chain management	--->	SI	.752	1.039	.091	11.472	***
Competitive superiority	--->	LC	.700	.610	.062	9.839	***
Competitive superiority	--->	QU	.706	.686	.068	10.026	***
Competitive superiority	--->	FL	.830	1.108	.074	14.976	***
Competitive superiority	--->	DE	.899	1.509	.073	20.675	***
Competitive superiority	--->	IN	.806	1.086	.079	13.708	***

SC= Sustainable Procurement, RL= Reverse Logistics, ST=Sustainable Transportation, SM= Sustainable manufacturing, SI= Sustainable Storage,

Therefore, the sub-hypotheses can be tested as follows:

H2: a) *Sustainable purchase significantly impacts competitive superiority.*

Table 3 shows that sustainable purchase has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.22. To put it the other way, the sustainable purchase dimension affects the competitive superiority by 22 % at the level of the textile Factory. This means a one unit deviation from the sustainable purchase dimension in the textile Factory leads to a change in competitive superiority by 22%. It is a moral value as the critical ratio C.R.) shown in Table 4 amounting to 0.080 which is significant value at a significant level 0.002. Hence, the first sub-hypothesis is proved.

H2: b) *Sustainable manufacturing a significant effect on competitive superiority.*

Table 3 shows that sustainable manufacturing has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.16. To put it the other way, the sustainable manufacturing dimension affects the competitive superiority by 16 % at the level of the textile Factory. This means a one unit deviation from the sustainable manufacturing dimension in the textile Factory leads to a change in competitive superiority by 16%. It is a moral value as the critical ratio C.R.) shown in Table 4 amounting to 2.270 which is significant value at a significant level 0.023. Hence, the second sub-hypothesis is proved.

H2: c) *Sustainable transport significant significantly impacts competitive superiority.*

Table 3 shows that sustainable transport has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.26. To put it the other way, the sustainable transport dimension affects the competitive superiority by 26 % at the level of the textile Factory. This means a one unit deviation from the sustainable transport dimension in the textile Factory leads to a change in competitive superiority by 26%. It is a moral value as the critical ratio C.R.) shown in Table 4 amounting to 3.280 which is significant value at a significant level 0.001. Hence, the third sub-hypothesis is proved.

H2: d) *Sustainable storage significant significantly impacts competitive superiority.*

Table 3 shows that sustainable storage has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the standard effect coefficient has reached 0.24. To put it the other way, the sustainable storage dimension affects the competitive superiority by 24 % at the level of the textile Factory. This means a one unit deviation from the sustainable storage dimension in the textile Factory leads to a change in competitive superiority by 24%. It is a moral value as the critical ratio C.R.) shown in Table 4 amounting to 3.359 which is significant value at a significant level 0.000. Hence, the fourth sub-hypothesis is proved.

H2: e) *Sustainable reverse logistics significantly impacts competitive superiority*

Table 3 shows that sustainable reverse logistics has a positive significant effect on the competitive superiority at the level of the textile factory. It is notable that the value of the

standard effect coefficient has reached 0.25. To put it the other way, the sustainable reverse logistics dimension affects the competitive superiority by 25 % at the level of the textile Factory. This means a one unit deviation from the sustainable reverse logistics dimension in the textile Factory leads to a change in competitive superiority by 25%. It is a moral value as the critical ratio (C.R.) shown in Table 4 amounting to 3.724 which is significant value at a significant level 0.000. Hence, the fifth sub-hypothesis is proved.

H3: *GSCM and SSCM have multiple significant effect on competitive superiority.*

Figure 2 shows the multiple regression as well as the value of coefficient of determination (R^2) for the effect of GSCM and SSCM on the competitive superiority.

Figure 2 indicates that GSCM and SSCM have significant. It is ascertained by the standard value for the two independent variables i.e., GSCM and SSCM have reached (0.54, 0.33) respectively. This means that the competitive superiority at the level of the textile Factory will be changed by 0.87 in the event of increasing interest in GSCM and SSCM by one unit totally. We also note that the value of the impact coefficient is a significant value, because the critical ratio (C.R.) reached 5.875, 3.610 respectively which are at the probability level significant as shown in Figure 2. As shown in the same model, the SSCM variable had the greatest impact on competitive superiority, followed by the GSCM variable. Figure 2 shows that the coefficient of d determination (R^2) has reached (0.71). It means that GSCM and SSCM explained 71% of the changes that occur on competitive superiority. However, the remaining 29 % are resulted by other variables not included in the study model. This result indicates that GSCM and SSCM have significant impact on competitive superiority at the level of the textile Factory. Therefore, the third main hypothesis is proved.

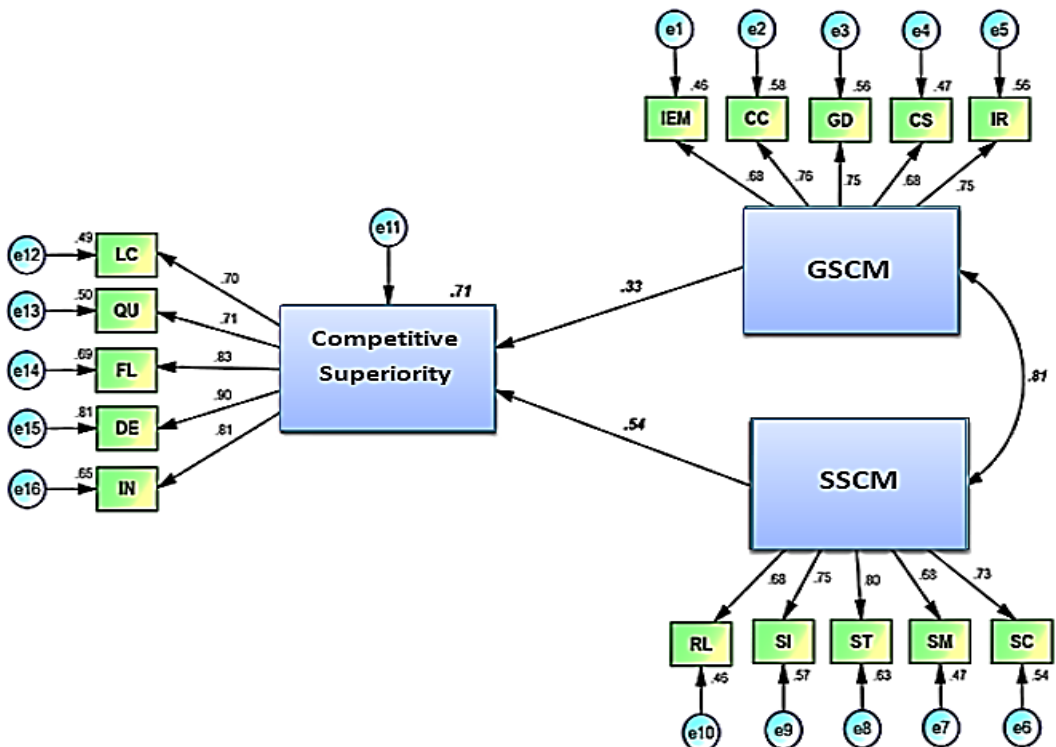


Figure 2. The impact of GSCM and SSCM on competitive superiority

Conclusion

Previous literature and studies indicated the scarcity of studies related to green and sustainable supply chain management in achieving competitive superiority to the best of our knowledge. This study is the first exploratory study that uses green and sustainable supply chain management factors to achieve competitive advantage at Wasit Textile Factory.

Green (internal environmental management, customer collaboration, green design, supplier collaboration and investment recovery) and sustainable (sustainable procurement, sustainable manufacturing, sustainable transportation, sustainable warehousing and sustainable reverse logistics) management factors were analyzed to determine their joint impact on competitive advantage. . The response was good from the factory workers, amounting to (102).

Its data was analyzed using the program (SPSS V. 24, Excel V 13 and Amos V 25). The results of the study showed that there is a statistically significant effect relationship between green and sustainable supply chain management on competitive advantage.

The results of the current study can contribute to directing the attention of workers in the industrial sector towards the use of green and sustainable supply chain management factors for competitive advantage.

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