

## The Moderating Role of Social Capital in the Relationship Between Green Supply Chain Management and Sustainable Business Performance: Evidence from Jordanian SMEs



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### ABSTRACT

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Today's businesses are very worried about environmental issues because many corporate activities could harm the environment. Green Supply Chain Management (GSCM) approaches have increased in popularity in this field. However, small and medium-sized businesses (SMEs) are often less inclined to adopt environmental practices compared to large companies. Although few earlier researchers investigated the direct impact of GSCM on Sustainable Business Performance (SBP), this study makes a unique contribution by offering a comprehensive view of assessing the moderating role of social capital (SC) in the influence of implementing two main GSCM practices (which are Internal-GSCM and External-GSCM) on sustainability performance. A survey method was used to collect data from 420 Jordanian SMEs, and the partial least squares (PLS) method is applied to test hypothesized relationships. The findings reveal that the practices of GSCM, significantly enhance SBP. Surprisingly, SC does not moderate the relationships between the GSCM practices and SBP. This study emphasizes the value of GSCM practices in enhancing SBP among Jordanian SMEs. It is implied that adopting GSCM practices help SMEs enhance the efficient consumption of resources and reduce production cost, improving SBP. Most importantly, the sustainable or GSCM plays a significant role in reducing waste and harmful emissions, thus, improving environmental quality. Hence, this study provides some insights into the type of GSCM practices the SMEs require to apply to improve the desired sustainability performance. This study adds new insights to the extant literature while providing significant new avenues for future research.

## 1. INTRODUCTION

Customers and environmental organizations have long been deeply worried about global warming and the consequences that consumer goods and services have on the environment. In addition, senior executives in practically every corporation are now aware that there is a large and rising environmental risk in their company's supply chain. Consequently, throughout the past few years, the convergence of organizational performance and environmental issues has begun to draw attention. Likewise, the key forces driving global efforts for GSCM are climate change, the loss of environmental degradation, and natural resources. In most developed nations, GSCM has evolved into an organizational mission. To manage the complexity of today's global markets, firms continue to appreciate the necessity of having positive connections with their supply chain partners. As a result, cooperation with suppliers is a crucial strategic factor approach to achieving sustainable Performance.

However, environmental degradation has been impairing nature and the economic success of human society [1]. The increasing concerns about environmental challenges have intensified the efforts of both governments and corporations towards more sustainable manufacturing techniques, in addition to the incorporation of sustainable processes into

corporate operations [2]. Meanwhile, SMEs significantly contribute to generating employment and value-added goods and promoting innovation in local economies [3]. Therefore, SMEs can be viewed as an economic foundation for a country like Jordan. Nonetheless, SMEs have been found to lack concerns about protecting the environment, Hill and McGowan [4] reported that SMEs contribute over 60% to 70% of industrial pollution. This confirms the need for SMEs to devise strategies concerning environmental issues. In this regard, academics and policymakers in Jordan have proposed the implementation of GSCM practices in SMEs to effectively reduce pollution while maintaining competitiveness in the market [5].

As described by Zhu et al. [6], there are two categories of GSCM practices, namely Internal GSCM (INT-GSCM) and external GSCM practices (EXT-GSCM). INT-GSCM practices include eco-design/green design (ECO) and Internal Environmental Management (IEM), which may be planned, formed, and implemented within the company. Meanwhile, the Ext-GSCM practices involve Environment's Collaboration (EC) with other parties like clients and suppliers, such activities include green building, production, packaging, distribution and purchasing, investment recovery, and environmentally friendly customer interaction. GSCM activities are beneficial for SMEs as they enhance efficiency,

customer satisfaction, and brand image. GSCM practices also improve the environment, increasing businesses' operational performance and cost-effectiveness [7]. Diab et al. [8] suggested adopting the INT-GSCM practices first, before executing the EXT-GSCM, to ensure success in the latter practices.

Dubey et al. [9] have demonstrated the value of GSCM through its SC ingrained within the buyer-supplier interaction. In this regard, SC becomes a vital factor that helps in generating valuable resources [10]. It encompasses the current and future potential resources generated from the buyer-supplier relationships [11]. In previous studies, SC has been reported to facilitate the culture of learning [12], and resilience [13] within organizations. On the other hand, SC has been found to decrease the problem of opportunism [14]. Hence, SC could facilitate the effective adoption of assessment and cooperation practices in the supply chain. However, studies examining the social aspects of GSCM have not addressed the significant role of SC in facilitating the execution of social GSCM activities [15]. Hence, the present paper aims to examine the moderating role of SC represented by various components such as relational, cognitive, and structural in the relationship between GSCM practices (both the INT-GSCM practices like IEM and ECO, whereas the EXT-GSCM practices like green purchasing (GP), EC, and Reverse Logistic (RL)) and SBP (Social, Economic, and Environment) among Jordanian SMEs.

As opposed to large enterprises, SMEs have a unique and flexible structure, which allows them to perform better economically, environmentally, and socially [16]. According to the Jordanian Ministry of Agriculture (MOA) [17], Jordanian SMEs have a greater ability to improve resource efficiency, recycle raw materials, and provide green environment products and services through their adoption of more Ecological Management Systems (EMS). Likewise, Jordanian SMEs could particularly attain copious innovative resources quicker, so SC can arguably impact the relationships of INT-GSCM and EXT-GSCM practices with SBP outcomes. However, the lack of a well-developed body of literature in Jordan makes it challenging to comprehend how GSCM and SMEs sustainability performance are related. Notably, in the Jordanian context, the literature lacks to provide sufficient evidence on the moderating role of SC in the association between GSCM practices and SMEs sustainability performance. Hence, there is a strong need to explore and understand the possible connection between these factors. Nowadays Jordanian SMEs have embraced green efforts including reforestation and afforestation, the use of efficacious energy sources, and enhanced surplus management to reduce wasted effort or expense. Hence, enhancing environmental, social, and economic sustainability aspects. Despite these efforts, environmentalists continue to call for environmental protection, sustainable resource use, and long-standing concerns about environmental contamination and land degradation in general [18].

Recently, due to increasing pressure from foreign investors, Jordanian SMEs are now starting to adhere to new laws, rules, and conventions. Until now, in Jordan, SMEs have been criticized for inappropriately following the paradigm and idea of sustainable development [5]. A survey conducted by Jordan Enterprise Development Corporation (JEDCO) [5], indicated that 90% of SMEs in Jordan are unaware of the concept and paradigm of sustainable development. Although the Jordanian government is continuously providing regulations for SMEs

that help enhance their sustainability [17], still there is a scarcity of literature investigating sustainability issues in the SME sector. Considering the given issues, an additional investigation in this field is strongly required to narrow down such gaps. Hence, this study intends to fill these gaps by investigating the moderating role of SC in the influence of GSCM practices on SBP among Jordanian SMEs. The findings significantly contribute to the prevailing body of knowledge in the SMEs context that has just begun implementing green practices in Jordan.

The remaining paper is arranged as follows. Section two presents the theoretical background and provides an overview of previous literature addressing the importance of GSCM and SC in the sustainability performance of Jordanian SMEs. Section three then details the study materials and methodology, followed by discussions of the data analysis and outcomes in section four. The last section presents the conclusion with a discussion of the study's shortcomings and directions for further research.

## 2. LITERATURE REVIEW

### 2.1 Theoretical background

This research draws on the Resource-Based View (RBV) and Relational View (RV) theories to generate the conceptual framework examining the moderating role of SC between the GSCM and sustainability performance among Jordanian SMEs. Extending the theory of RBV [19], the RV perspective is a branch of the RBV on an inter-organization or networks levels, which may be regarded as the theoretical underpinning of choice for examining partnerships within supply chain actors [20]. The RV theory focuses on the creation and growth of inter-organizations resources and skills through collaboration, which is uniquely challenging for competitors to imitate. It should be highlighted that this imperfection in rivals' imitation also translates into imperfection in the endowed company's replication [21]. The RV theory suggests four elements of inter-firm competitive advantage: complementary capabilities and resources, knowledge-sharing routines, relation-specific assets, and practical governance [22]. Likewise, RBV theory also highlights various firm-level factors that could help in achieving sustainable competitive advantage. These factors include time compression diseconomies [23] and causal ambiguity [24].

In this regard, Sustainable Supply Chain (SCM) can be viewed as the management of a heart supply chain within a company, a dynamic connection between two companies, an exterior supply chain from the sources to the clients, or the network of connected companies [25]. From the perspective of Paulraj et al. [26] support the network conception of SCM by asserting that organizations are regarded as links in a network supply chain. A company's performance is equally influenced by how well it collaborates with its immediate partners and by how well those partners collaborate. Lockett et al. [27] argued that the value of resources is largely strengthened when the organizations cooperate with other organizations by combining their valued capital. Meanwhile, Halldorsson et al. [28] also pointed out that collaboration between businesses results in greater benefits as compared to individual performances.

According to the RBV, resources are assets unique to a specific company that is hard to replicate, arguing that a

company's ability to access essential resources helps in achieving a higher competitive advantage [29]. Therefore, the organizational capability is one of the key factors that is represented as complex packages of individual skills, assets, and extensive knowledge that allow organizations to manage activities and effectively use of their resources [30]. In general, essential capabilities are critical for any company to achieve its sustainable development goals [30]. Hence, with evolving external environment, organizations must continuously strengthen their resource base to maintain competitiveness and outperform in the market. Mainly, organizations' dynamic capabilities to combine, develop, and reorganize external and internal competencies to timely address external changings, are vital for sustainability [31].

In this regard, SMEs may view supply chains as opportunities to use external resources and capabilities that they can access and utilize to build sustainable competitive advantage. The individual company may ask other supply chain companies for complementary resources while concentrating on its core expertise [32]. According to Rungtusanatham et al. [33], a company's supply chain relations are vital resources that can help secure long-term operational performance advantages or enable temporarily superior operational performance if the companies can consistently preserve their values, rarity, imperfect transferability, and imitability.

Hence, it can be deduced that stronger SC will increase the likelihood that network participants will act in ways that are beneficial to other participants in order to preserve their social network relationships. SC was also acknowledged in the literature on organizational research as a useful tool for gaining access to resources [34], and demonstrated the usefulness of RV in explaining the interactions and activities between firms [35]. Additionally, achieved superior sustainability levels [11]. Extending from this line of study, we suggest that RBV and RV offer a strong foundation for comprehending how GSCM information exchange behaves. In particular, RV provides a theoretical framework for exploring how information sharing about sustainability and network-based social interaction are related. To the best of our knowledge, no prior research has looked at the causes of the moderation role of SC on the connections between GSCM and SBP in the setting of Jordanian SMEs. This study seeks to investigate the SC relationships between Jordanian SMEs and their suppliers and their various impacts on sustainable business performance outcomes. Figure 1 is a theoretical framework that explains the role of SC as a moderation between GSCM and sustainability performance.

## 2.2 Green supply chain management

Recently, GSCM is gaining great attention from business operation experts and researchers because of the growing concerns regarding the adverse impact of industrial companies on the plant, society, and, the environment. Likewise, increased awareness of organizations' obligations to their customers, suppliers, and internal operational processes has expanded the scope of environmental management practices, surpassing the general bounds of business duties toward the protection of the earth and society [36]. Hence, GSCM is regarded as an approach for efficient strategic management that elevate the environmental performance of manufacturing organizations as well as else sustainability performance objectives [36]. In this regard, De Giovanni [37] argues that

GSCM is a special road map for producing economic earnings as well as enhancing social well-being. It is not solely a tool for minimizing the environmental footprints of processes and products. Also, it is obvious from the empirical datum already obtainable that eco-friendly techniques typically offer respectable social performance, such as enhancing corporate image [38]. and increasing consumer loyalty [37].

In this study, GSCM includes both internally and externally directed practices as proposed by Wolf [39]. As reported by Srivastava [40], these practices foster green values across the various processes of the supply chain. The external and internal GSCM practices presented in the extant GSCM literature can be viewed in Table 1. The previous literature has comprehensively examined INT-GSCM and EXT-GSCM practices [10]. Fahimnia et al. [41], asserted that adopting both forms of GSCM practices creates a sustainable competitive advantage for the organization. These practices are also helpful for all parties involved within the supply chains to save economic costs and improve the environment. Accordingly, the associations between various dimensions of GSCM, namely the INT-GSCM and the EXT-GSCM, need to be examined further, particularly in their relationship with sustainability outcomes to enrich the literature on GSCM [40].

**Table 1.** Green supply chain management practices

Practices	Definition
<b>INT-GSCM Practices</b>	An independent manufacturer can oversee and carry out Eco-design (ECO) and Internal Environmental Management (IEM) tasks that do not directly involve suppliers or customers [42].
<b>EXT-GSCM Practices</b>	With regards to their Reverse Logistics (RL), Green Purchasing (GP), and Environmental Cooperation (EC), the environmental management techniques require limited collaboration from suppliers and customers [42].

## 2.3 Sustainable business performance

In describing the concept of sustainability, Mentzer et al. [43] referred to the Brundtland Commission by defining the concept as the development that fulfills the desires of the present consumers without bargaining the capacity of future consumers to meet their desires. Pertinently, the concept of organizational sustainability comprises three elements: environmental, economic, and social performance [44]. As Koo et al. [45] highlighted in both developed and developing nations, SBP also takes into account the adverse impacts of business activities on the environment. Precisely, during the United Nations Climate Change (UNCC) conference in 2015, the need to rescue planet earth was proposed through the use of preventative measures that cover all sustainability aspects (social, economic, and environmental aspects) [46].

Sustainability aspects refer to the actual outcomes of organizations' practices on the organization's social, environmental, and economic performance outcomes. In this regard, environmental performance concerns the willingness of a firm to reduce its effluent waste, air pollution, using lethal material, and the occurrence of environmental catastrophes [47]. Meanwhile, as described by Newman et al. [48], social performance concerns the actual effects of organizations' practices on the company's social elements and product reputation perceived by the company's stakeholders (e.g., employees, consumers, suppliers, and the public at large). Moreover, economic performance relates to the enhancement

of a firm's performance in finance and marketing relative to industry averages following its green practices [47].

The multi-dimensional concept of sustainability is in line with the TBL framework given by Elkington [49], which from a microeconomic perspective, at the same time considers and balances environmental, economic, and social goals. Whereas the researchers now view wise management as a core foundation of sustainability. Hence, businesses should recognize that sustainability is not just about being a good corporate citizen and getting points for decreasing toxic emissions from your production or giving your employees and community access to healthcare [50]. The TBL thus proposes that organizations can involve in activities that positively affect society and the environment and bring about long-term financial gains and a sustainable competitive advantage. These activities can be found at the economic, environmental, and social performance nexus. The TBL of sustainability performance components, therefore, have equal weight and produce shared value [51].

## 2.4 Social capital

The concept of SC comprises "the total of the potential and actual resources rooted within, offered through, and derived from the network of relations possessed by an individual or social unit" [52]. According to the RBV theory, SC is an intangible asset that could help firms acquire a competitive advantage in the market. Meanwhile, as described by Nahapiet [52], has three main components, such as structural, cognitive, and relational capital. Lawson et al. [34] provide explanations for these aspects, for instance, structural capital comprises structural arrangement and accountabilities that promote technical and management dialogue among the involved parties. Similarly, relational capital signifies the relational embeddedness demonstrating the relationships formed through past interactions underpinned by trust and reciprocity. Further, cognitive capital shows the engagement of parties who possess a similar understanding to form shared beliefs and objectives.

In addition, RV also perceives interpersonal connections as important capital for the organizations to access required resource [45]. Hence, SC is perceived as a stimulator of alliance and coordination that will benefit all involved parties in the supply chain [11]. Tsai and Ghoshal [53] described SC as all current and potential resources formed through the relationships in the network of an organization, and these resources can be accessed through these relationships. They also highlighted the mechanism of how SC facilitates the organization's resource exchange and product innovation. Subsequently, the hypotheses development is formulated in the following section to support the research model.

## 2.5 Hypothesis development

### 2.5.1 Green supply chain management and sustainable business performance

The concept of SCM was presented in 1990, and it includes all elements and tasks related to the movement of merchandise from raw materials to the end consumers like supplier-customer relationship, inventory control, and product delivery [43]. Due to the growing environmental concerns, GSCM was introduced as a vital tool for achieving sustainability [8]. In this regard, the obligation to establish documented EMS by ISO 14001 increases the firm's environmental performance

[54], because EMS facilitates the deployment of GSCM through its guidelines on handling the environmental effects of the supply chain [55].

Rao and Holt [56] stated that adopting GSCM procedures significantly improves organizations' competitive performance. Alshura et al. [57] argued that employing green design (eco-design) in GSCM can decrease the negative effects of production. In the same vein, Mumtaz et al. [58] described various ECO practices that could reduce or avert the utilization of harmful materials in product creation and minimize waste production. Amemba et al. [59] reported that during production, utilizing ecologically acceptable energy sources, such as biodegradable energy and solar, is a vital component of the supplier's green processes, lessening adverse effects of production on the environment, while increasing productivity. Further, Zhu and Sarkis [6] reported that the adoption of ECO may ensure eco-efficiency and facilitate remanufacturing operations, achieving sustainable performance certification, ECO processes, and sustainability success.

Literature indicates that both INT-GSCM and EXT-GSCM practices play a key role in enhancing sustainability outcomes. For example, GP as an internal practice help firms follow the environmental protection standards in determining suppliers, the process of evaluation, the attainment of raw materials, and in the reuse, and recycling processes [58]. Nderitu and Ngugi [60] reported the critical impact of GP methods on long-term organizational sustainability performance since these buying methods assure product safety through the product's compliance with environmental standards. Likewise, the patterns of green spending contribute to forming a positive "green" reputation in the market, which can help maintain corporate sustainability performance [61].

An organization is required to maintain teamwork among all departments so that environmental challenges can be addressed effectively [36]. In this regard, Chin et al [62] suggested top management encourage and implement the GSCM procedures within the production process. Organizations should collaborate with external parties, including suppliers to achieve sustainability goals and increase awareness of environmental issues [11]. Kim and Chai [63] reported that EC could be supported through supplier integration at the strategic, operational, and tactical levels. Rahim et al. [64] further added that these collaborative practices could facilitate the successful use of GSCM practices to achieve adequate sustainability outcomes. Investigating the importance of suppliers' involvement, previous literature has found the significant and positive role of EC in achieving sustainability [9]. Hence, SMEs managers should motivate collaboration among all involved parties in the chain so that GSCM processes can be effectively implemented to achieve sustainable development goals [55].

Additionally, RL is another vital EXT-GSCM practice that is critical for remanufacturing and recycling operations. According to Muma [61], RL comprises several sub-practices like material reuse, product return, reproduction, recycling, and waste disposal. It requires the retrieval of used goods (e.g., used packaging) from consumers by businesses, and these retrieved used goods are returned to suppliers for remanufacturing [65]. This indicates the significance of RL practice in maintaining superior sustainability performance. Hence, based on the arguments from previous literature, the researchers proposed the following hypotheses:

*Hypothesis 1: There is a positive relationship between*

*internal GSCM practices and the sustainable business performance of Jordanian SMEs.*

**Hypothesis 2:** *There is a positive relationship between external GSCM practices and the sustainable business performance of Jordanian SMEs.*

#### 2.5.2 Social capital and sustainable business performance

Companies with high-level SC appear to show superior performance as opposed to their rivals [52], and the relational embeddedness of SC is an important performance antecedent [66]. Mainly, companies could achieve favorable credit policies by establishing business connections with suppliers [11]. The performance of these connections has been examined using financial and non-financial measures. Stam et al. [67] showed that the SC has a positive and significant linkage to the firm's sustainability performance. Likewise, Lin and Dumin [68] reported that SC obtained from networking and social connections with business executives, public servants, and local leaders improved sustainability outcomes. In addition, among Thailand SMEs, Veskaisri et al. [69] also reported the positive effect of personal connections with other companies' managers on the enterprise's market share.

Meanwhile, Krause et al. [70] reported a strong link between the insights of purchasing firms with comparable values and aims with major suppliers and the enhancement of sustainability performance, particularly in terms of cost reduction. This emphasized that SC improves the SMEs sustainability outcomes, especially concerning profit, market share, turnover, and employment. Moreover, Omisakin et al. [71] found that SC is advantageous to the sustainability performance outcomes of SMEs, especially in job creation, environmental protection, and expanding the enterprise's survival. The above-mentioned debate has led us to propose the following hypothesis:

**Hypothesis 3:** *Social capital positively affects the sustainable business performance of Jordanian SMEs.*

#### 2.5.3 Moderating role of social capital

As provided by the first two hypotheses, the practices of GSCM are expected to positively influence Jordanian SMEs sustainability outcomes. The GSCM practices improve the capability of organizations' processes to efficiently use resources and enhance productivity [10]. Somehow, as indicated by Zhu and Sarkis [6], imprudent implementation of GSCM practices may not improve SBP because some of the external and internal factors could adversely affect an organization's ability to gain competitive advantages. Previous findings by Chan et al. [72] have shown that within SC networks, knowledge is incorporated into business operations via social connections which consider vital tools for ensuring sustainability. Thus, SMEs must have strong relationships with their supply chain allies to effectively exchange important information. Furthermore, the relational strength between supply chain members also plays a vital role in the association level between GSCM practices and sustainability performance [8, 55].

Through SC, knowledge sharing can be expanded, and organizations have better access to the knowledge of their partners [11]. Through additional knowledge, firms enhance their flexibility to deal with sustainability issues. As reported by Pathak et al. [73], firms and their partners can collaborate in enhancing their capability of implementing GSCM practices to minimize environmental risk, particularly via relational bonding within the supply chain. Notably, firms

with weak relational bonding with their partners may have weaker attachment and incompatibility issues that could adversely affect their performance [74]. Incompatible partnerships between firms and their partners can also lead to a lack of understanding and ineffective communication [73]. Hence, SMEs must strive to maintain a higher interaction with their suppliers, even though some may be contradictory to their strategies [75]. Hence, without adequate relational bonding between SMEs and their partners, cooperative activities to develop GSCM practices may be impossible to carry out effectively, resulting in unsatisfactory sustainability outcomes.

Preserving adequate connections with supply chain partners will encourage more knowledge transfer beyond corporate bounds [40]. Through these special networks, partners will be motivated to maintain their partnership with one another, especially with those who have greater expertise in sustainability measures like cost-saving and green product design [10]. Extant studies, such as Alghababsheh et al. [76] have reported that supply chain partners who share the same values and objectives would interact more in incorporating logistical green management processes. In general, GSCM contributes to the operational and environmental performance enhancement of organizations through SC accumulation [77].

Furthermore, firms seek to preserve their connections with their suppliers, proposing flexible solutions and specialized green practices to these suppliers. According to Afum et al. [55], these specialized green practices help firm partners to acquire value-added benefits they may not get elsewhere. Indeed, firms could effectively collaborate with their partners in the process of introducing eco-friendly outcomes and in the implementation of innovative energy-saving technology. Concerning the issue of sustainability, SMEs can raise the competencies of their SCM and the ability to design greener (eco-friendly) products. In this regard, SC enhances the relationship strength between SMEs and their partners, leading to increased productivity, efficiency, resource utilization, information exchange, and sustainability outcomes in general. Previous literature also implies that SC could play a significant moderating role in the link between GSCM practices and sustainability outcomes [18, 55]. Hence, it is argued that the positive effect of GSCM practices on SMEs sustainability could be intensified with the presence of high-level SC between supply chain partners. Likewise, the literature also indicates the potential of high-level SC aspects, structural, relational, and cognitive, to simplify the adoption of the SMEs GSCM practices, both external and internal GSCM, in their effort to improve SMEs sustainability [55]. Thus, the following hypotheses were proposed:

**Hypothesis 4:** *Social Capital positively moderates the relationship between Internal green supply chain practices and the sustainable business performance of Jordanian SMEs.*

**Hypothesis 5:** *Social Capital positively moderates the relationship between external green supply chain practices and the sustainable business performance of Jordanian SMEs.*

### 3. RESEARCH METHODOLOGY

#### 3.1 Conceptual framework

A conceptual model is represented in Figure 1. It explains, comprehends, and explores numerous factors that influence improving sustainability business performance. This

conceptual framework involves an outcomes variable, sustainable business performance, which is represented by three diverse performance dimensions. These multiple outcomes indicators include economic, social, and, environmental sustainability performance. Likewise, the model includes one primary independent variable, GSCM, represented by INT-GSCM and EXT-GSCM practices. Additionally, the research model also contains SC as a potential moderator in the association between GSCM and sustainable business performance.

The conceptual relationships of this research are explained in Figure 1, which is presented below. The direct arrows from INT-GSCM, EXT-GSCM practices, and SC to the sustainability business performance specify direct hypothesized relationships. Similarly, the arrows from SC describe hypothesized relationships regarding the moderating role of SC in the impact of GSCM practices on SMEs sustainability business performance.

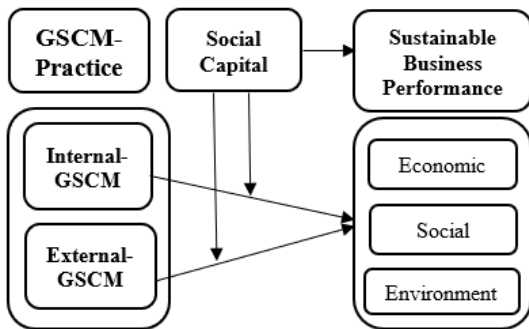


Figure 1. Conceptual framework

### 3.2 Measuring instrument

The aim of this paper is to examine the impact of GSCM practices on various sustainable business performance outcomes among Jordanian SMEs. All constructs' measuring indicators were created using an adaption method from earlier studies, as well as rather than formative the study constructs model are all reflective multiple-item scales. The elements of all measuring indicators are accessible and briefly discussed in APPENDIX A. The variable of INT-GSCM is measured by six indicators covering two key practices, namely, internal environmental management and green design (eco-design) adapted from [6, 42]. Likewise, the construct of EXT-GSCM is designed based on three key practices such as environmental cooperation, green purchasing, and reverse logistics. Specifically, a total of nine indicators were adapted to measure EXT-GSCM adapted from [78].

To measure SMEs sustainability performance a total of five indicators were adapted from the earlier literature [79]. These five indicators cover fundamental sustainability aspects such as economic, social, and environmental. Furthermore, thirteen indicators were adapted from Chu et al. [80] to measure SC represented by relational, cognitive, and structural social capital.

### 3.3 Data and sample selection

A cross-sectional survey method was used in this research to investigate the moderating role of SC between various GSCM practices on multiple Jordanian SMEs sustainability performance outcomes. Simple items that were adapted from

the current studies were used to create a questionnaire. The Appendix. A contains a description of each variable item in depth. A 5-point Likert scale was used to record responses from survey participants, with 1 denoting “strongly disagree” and 5 denoting “strongly agree”. The Jordanian SMEs operating in the Jordan Industrial Estates (JIE) were used to select the sample. The rationale behind selecting these SMEs is that they have specialized capabilities, participated in the development of sustainability initiatives, cooperate with many suppliers all over the world [5], have their chances for progression, and economies of scale as well as their vast effect and flexible and unique structure.

Referring to the database that was obtained from the 2020 SME business directory of the SMEs development chamber of Jordan, [81], Jordanian industrial estates has approximately 810 established SMEs operating in eight industrial estates are operating in Jordan, and in order to preserve the industrial estate’s proportions of the target population, stratified random sampling (a random sampling method or probability) was applied. Stratified random sampling warrants acquiring a sample population that preferably represents the whole population under consideration, making sure that each subgroup (i.e., industrial estate) of interest is represented [82]. The Raosoft criteria recommended a minimum sample size of 256. In contrast, Creswell [83] suggested using the highest number of respondents in order to increase the outcomes' realism and truthfulness. Considering the previous argument, the determined sample size for this study was 420. These 420 sample SMEs were randomly drawn from the target population, i.e., 810 SMEs, by using a random table. A proportional allocation method was applied to draw the same proportion of samples from each industrial estate (stratum). Table 2 shows the results of the stratified sampling. As the population size of each industrial estate varies, a larger number of samples was drawn from the larger estate groups by the following equation:

$$\text{Sample Size in Each Stratum} = \text{Total Sample Size} \times \frac{\text{Population of Each Stratum}}{\text{Total Population}}$$

Table 2. Stratified sampling for SMEs

Name of Industrial Estates	Number of SMEs	Sample Size
Abdullah II Ibn Al-Hussein	472	245
Al-Hassan	141	73
Al-Hussein Bin Abdullah II	36	19
Al Muwaqar	106	55
Al Mafraq	9	5
Madaba	4	2
Salt	20	10
Tafeileh	22	11
Total	810	420

Note: Each sample size is rounded up to the integer.

The data-gathering procedure took place between July-October 2022. Ten SMEs managers from eight different industrial estates assessed the survey instrument before it was used to identify any issues with the questions in terms of phrasing, content, or ambiguity. As a result, some simple changes were made based on their comments. The responses were directly recorded using surveys distributed as a google form. Meanwhile, all chosen SMEs were from different industrial estates, and they were all willingly involved in this

study. Further, 411 completed questionnaires (out of 420 distributed) were returned, equivalent to a 97.8% response rate. In this regard, scholars had conflicting views. For instance, Mellahi and Harris [84] stated that there is no universally acceptable minimum response rate, while Malhotra and Grover [85] stated that a response rate should be at least 20% to make the data eligible for further analysis. Likewise, Goudy [86] suggested that a response rate should be between 30% and 70%. Nonetheless, the number of received responses (411) was appropriate for PLS-SEM analysis because the amount exceeded the minimum threshold of 261.

### 3.4 Data analysis

Partial Least Squares (PLS) modeling was applied to test both the measurement and the structural model, run with SmartPLS 4, Hair et al. [87] suggested that there is no need to assume normality when using PLS, Similarly, Chin et al. [88] asserted that it is not uncommon for survey research to have non-normal distribution. Nonetheless, the complex model with a moderating role was used in this study, hence, the model could not be simultaneously tested. In this regard, running regression using SPSS would be inappropriate. As a solution, structural equation modeling was applied instead. Structural Equation Modeling (SEM) can be run in two ways: run using covariance-based (CB-SEM) modeling with software such as AMOS, LISREL, and MPLUS, or run using variance-based modeling utilizing software such as SmartPLS and WarpPLS.

Notably, using SmartPLS to examine GSCM, SBP, and SC studies is increasingly common [11, 55]. Hair et al. [87] discussed three main benefits of using PLS-SEM. Firstly, PLS-SEM allows the use of moderate sample sizes; secondly, it allows the evaluation of models with normatively expressed constructs; and thirdly, it is better than regression analysis in evaluating moderating effects of variables.

Further, the framework proposed in this study is complex with three first-order constructs, PLS modeling was considered appropriate. Precisely, three first-order constructs comprised GSCM Practices, represented by two dimensions; SC, represented by three dimensions, and SBP, represented by three dimensions. A moderation model was also proposed in this study. As highlighted by Hair et al. [87], the PLS-SEM method are appropriate for a complex model whereby the prediction is more prominent than parameter estimation and requirements associated with sample size. PLS-SEM was appropriate for this research because data were obtained from one source only. Specifically, using the PLS-SEM technique, this study conducted the measurement and structural models to achieve its research objectives. The measurement model is performed to assess the validity and reliability of the constructs, whereas the structural model is used to test the proposed research hypotheses.

## 4. RESULTS

### 4.1 Demographic profile of the respondents

The demographic profile reveals that the survey participants have the appropriate training, credentials, and job status to participate in this study. Among the respondents, SMEs investigated in this research, Results from Table 3, show that most participants were males, 78.1%, while females constituted 21.9%. In terms of age, most respondents were

between the ages of more than 45 years 31.9%; 25.3% were between the ages of 41-45 years; 23.1% were between 36-40 years; 13.4% were between 31-35 years while 8% were between the ages 25-30 years. Regarding educational level, most respondents were first-degree holders (58.9%); 31.1% had master's/postgraduate degrees, while 10% had diplomas. The results also asserted that the majority of the participants 58.4% had spent more than ten years working for Jordanian SMEs; 18.7% had worked in SMEs for 7-10 years; 13.6% had worked in SMEs firms for 4-6 years, and 9.2% had worked in SMEs for 1-3 years. Concerning firm size, 77.9% of the targeted population were from SMEs categorized as medium (30-99 employees), and 22.1% of the respondents were from small (6-29 employees).

**Table 3.** Demographic data of respondents

Gender	Frequency	Percentage (%)
Male	321	78.1
Female	90	21.9
Total	411	100
<b>Age</b>		
25-30 years	26	6.3
31-35 years	55	13.4
36-40 years	95	23.1
41-45 years	104	25.3
More than 45 years	131	31.9
Total	411	100
<b>Educational Level</b>		
Diploma	41	10
First Degree	242	58.9
Masters/Postgraduate	128	31.1
Total	411	100
<b>Tenure</b>		
1-3 years	38	9.2
4-6 years	56	13.6
7-10 years	77	18.7
More than 10 years	240	58.4
Total	411	100
<b>Firm Size</b>		
6-29 employees (Small)	91	22.1
30-99 employees (Medium)	320	77.9
Total	411	100

### 4.2 Common method bias

First of all, this study applied the full collinearity assessment proposed by Kock [89] for the valuation of common method bias. In general, common method bias issues are typically caused by the measuring methodology used in SEM-related studies. Precisely, Instruments may have an impact on responses, which leads to a certain extent of common variation among the items. Hence, a random variable was created and then full collinearity was assessed by regressing this random variable on the latent variables of this study. Results tabulated in Table 4, demonstrate that all whole collinearity Variance Inflation Factors (VIFs) values are below the significance threshold of 3.3 [87]. As a result, this shows that collinearity is not a problem in this study.

**Table 4.** Full collinearity testing

	INT-GSCM	EXT-GSCM	SC	SBP
VIF	1.729	1.627	1.063	1.327

### 4.3 Measurement model

The proposed model was put to the test in this study using the recommendations of Anderson and Gerbing [90], that is, to use a two-step approach. As the first step, the measurement model was tested for its validity and reliability. The guidelines provided by Hair et al. [87] were followed in testing the instrument's validity and reliability. The testing of the measurement model involved computation of loadings, Average Variance Extracted (AVE), and Composite Reliability (CR), with the following requirements: loading values should be at least 0.5, the AVE should be  $\leq 0.5$ , and CR should be  $\leq 0.7$ . The measurement model test results are displayed in Table 5 as follows: loading values were generally tolerable, with one or two loadings lower than 0.708 [87]; AVEs were all  $\geq 0.5$ , while CR values were all  $\geq 0.7$ . As mentioned earlier, the model had three first-order constructs: GSCM, SC, and SBP. The results of validity and reliability tests of the first-order constructs are represented in Table 5, and the results affirmed the validity and reliability of the first-order measurements.

Discriminant validity was evaluated as the next step, using the Heterotrait-monotrait Ratio of correlations (HTMT) criterion based on Henseler et al. [91]. In interpreting HTMT values, there are two types of HTMT criterion, the stricter one, and the more lenient one, whereby the former proposed a value of at least 0.85, while the latter proposed a value of 0.9 at least. All obtained values of HTMT are displayed in Table 6, and as can be observed, all values are lower than the lenient criterion of  $\leq 0.9$ . Hence, it is reasonable to conclude that the respondents generally were able to differentiate the study constructs. As can be deduced from the results shown in Table 5, the measurement items demonstrated validity and reliability. Finally, while structural models are examined to evaluate the hypothesized links among particular model variables, measurement models are calculated to evaluate the validity and reliability of the constructs.

The next step involved running the structural model to test the proposed hypotheses:

**Table 5.** Measurement model for the first order constructs

First Order Constructs	Items	Loadings	AVE	CR
INT-GSCM	IGSCM1	0.655	0.523	0.867
	IGSCM2	0.797		
	IGSCM3	0.616		
	IGSCM4	0.805		
	IGSCM5	0.682		
	IGSCM6	0.764		
EXT-GSCM	EGSCM1	0.764	0.514	0.904
	EGSCM2	0.698		
	EGSCM3	0.774		
	EGSCM4	0.682		
	EGSCM5	0.795		
	EGSCM6	0.648		
	EGSCM7	0.66		
	EGSCM8	0.732		
	EGSCM9	0.682		
SC	SC1	0.658	0.507	0.93
	SC2	0.716		
	SC3	0.713		
	SC4	0.704		
	SC5	0.706		
	SC6	0.614		
	SC7	0.683		
	SC8	0.746		

SC9	0.73			
SC10	0.757			
SC11	0.727			
SC12	0.758			
SC13	0.731			
SBP	SB1	0.752	0.533	0.85
	SB2	0.757		
	SB3	0.66		
	SB4	0.754		
	SBP5	0.721		

**Table 6.** Discriminant validity (HTMT)

	EXT-GSCM	INT-GSCM	SBP	SC
EXT-GSCM				
INT-GSCM	<b>0.874</b>			
SBP	0.677	<b>0.763</b>		
SC	0.283	0.238	<b>0.346</b>	

### 4.4 Structural model

The proposed hypotheses findings (direct effects) are provided in Table 7, together with the beta and corresponding T-values that are crucially based on the one-tailed T-test. Ramayah et al. [92] suggested this research hypothesis was examined by running a bootstrapping method. Thus, to obtain the t-values, bootstrapping with 5000 resamples was employed. As shown in Table 7, it is found that INT-GSCM is positively related to sustainable business performance ( $\beta = 0.414$ ,  $p < 0.01$ ) at a 1% level of significance. Similarly, EXT-GSCM practices have a positive relationship with SBP ( $\beta = 0.233$ ,  $p < 0.01$ ) at 1% significance, hence supporting H1 and H2.

Subsequently, the direct relationship between SC and sustainable business performance was also positive ( $\beta = 0.133$ ,  $p < 0.01$ ) at a 1% level of significance, therefore, H3 is supported. On the other hand, this research also investigates hypothesized moderating relationships. Notable, SC is combined as moderating variable in the direct relationships of INT-GSCM and EXT-GSCM with SMEs sustainability performance. Moreover, using SmartPLS a moderating effect are created as a product of independent and moderating variables [92]. Findings offered in Table 7, demonstrate that SC does not moderate the influence of INT-GSCM ( $\beta = -0.087$ ,  $p < 0.181$ ), and EXT-GSCM ( $\beta = 0.0233$ ,  $p < 0.332$ ), on sustainability performance. Therefore, H4 and H5 were not supported. Hence, overall findings reveal that both INT-GSCM and EXT-GSCM practices play significant and positive roles in determining Jordanian SMEs sustainability performance outcomes. In addition, several researchers have disapproved of the P-value standards and recommended considering other approaches such as effect size. Hence, this study additionally provided F-square (F-sq) values so that the analysis could take effect size into account. Cohen [93] proposed cutoff values of 0.35, 0.15, and 0.02, indicating large, medium, and small effects, respectively. The F-sq values presented in Table 7, assert that all three direct relationships have sufficient effect size, supporting H1 (F-sq=0.13), H2 (F-sq=0.04), and H5 (F-sq=0.025). However, H4 and H5 are not supported.

## 5. DISCUSSION

The study found that GSCM practices are associated with sustainability performance and such a relationship is a respectable sign that SMEs in Jordan are going in the right path



because GSCM application is the foundation for any sustainability initiatives to drive SBP into the anticipated sustainability directions. Such a result was also pointed out recently by Younis et al. [78]. The researchers asserted that there are significant and positive relationships between the application of GSCM practices and improved sustainable business performance outcomes, such as the decrease of waste in the equipment, design, and resource selection processes, improved quality, decrease in lead times, and reduced production costs. Further, Ramírez et al. [94] asserted that there are significant and positive relationships between the adoption of GSCM practices and the demand for suppliers to fulfill sustainable business activities. As per JEDCO [5], more than 90% of SMEs in Jordan are unaware of the concept and paradigm of sustainable development. Although, the Jordanian government is continuously providing regulations for SMEs that help enhance their sustainability. Hence, SMEs in Jordan have begun realizing the importance of being conscious and sustainable.

The study examines the moderating impact of SC on the relationship of INT-GSCM and EXT-GSCM practices with sustainability performance among Jordanian SMEs. The study found that both INT-GSCM and EXT-GSCM independently enhance sustainability performance outcomes. Surprisingly, the study found that SC does not moderate the direct influence of INT-GSCM and EXT-GSCM practices on sustainability performance. In this regard, Jordanian SMEs ability to access resources is the main obstacle for SMEs to obtain the required and vital resources and information needed to achieve excellent sustainability [95, 96]. Likewise, JEDCO [5] pointed out that the COVID-19 closure paralyzed information and resource flow within Jordanian SMEs, due to their inability to invest and cooperate effectively within their social networks, which led to the emergence of financial burdens that put their businesses at risk while facing the COVID-19 consequences [97].

Further, the study found that INT-GSCM practices, such as eco-design and environmental management are positively and significantly and positively related to sustainability performance among Jordanian SMEs. These research results are in line with the recent study of Diabat et al. [98], the researchers found that eco-design and environmental management is one of the most significant GSCM practices that can drive better sustainability outcomes. Such motivating results in this research might be due to some new guidelines such as sustainability initiatives launched by agencies and governments in Jordan. For instance, "Jordan's strategic response plan" and "Aumneah" aimed at encouraging supply chain partners to work and cooperate extra jointly and closely together to achieve excellent sustainable outcomes.

On EXT-GSCM practices, the study results indicate that all the EXT-GSCM practices, such as reverse logistics, green purchasing, and environmental cooperation have positive relationships with sustainability business performance in the Jordanian SMEs sector. This result is also consistent with

previous research that establishes that reverse logistics, green purchasing, and environmental cooperation significantly enhance sustainability performance aspects including social, environmental, and economic outcomes [55, 99].

The current research reports significant relationships between SC with sustainable performance. This supports that SMEs in Jordan, strive to develop SC more and strive toward accomplishing a higher level of sustainability outcomes. One possible clarification for this positive relationship is that inter-organization rivalry is elevated to inter-supply chain rivalry. Supply chain partners cooperate and act as a single unified entity to effectively compete with competitors' supply chains [100]. In this context, SC provides a possible source of sustainable business performance [11].

Earlier studies have suggested that a high level of SC helps SMEs to perform better than their rivals [55]. Alghababsheh [11] finds the relational embeddedness aspect of SC as a significant antecedent to sustainability performance. Moreover, strong relationships with suppliers enable an organization to achieve a higher level of performance. SMEs build trust and progressively rely on organization networks to have a competitive advantage over their rivals in a developing nation context, this research reports that SMEs employ SC for accomplishing sustainable performance. Subsequently, based on these findings various theoretical and practical implications Likewise, limitations and future research are also discussed in this research.

### 5.1 Theoretical implications

Trying to address the present need to examine the collective impacts of resources such as GSCM practices and SC, on sustainable business performance and by recognizing accurately which may improve capabilities, this research can be considered an answer to the RBV and RV literature. Therefore, this study offers proof that GSCM practices are a crucial instrument that can be utilized by SMEs to improve GSCM application, which, in turn, can enhance their sustainability outcomes. Additionally, this study both confirms and gets better the essential understanding of the explanations in the earlier studies. First, it provides practical evidence for the simplification that how the adoption of environmental management approaches in the supply chains helps achieve sustainable business performance. Consequently, serves as an extension of the past literature which specified that GSCM practices [78], and SC [11] can offer SMEs to achieve sustainable competitive advantages.

Next, the study simplifies the cross-functional application of green management by providing various pieces of evidence that sustainable business performance can be enhanced by cooperating with suppliers through GSCM practices. Hence, this research supports previous research that has highlighted the necessity of GSCM practices SC and towards valuable sustainability outcomes [11, 55, 78].

**Table 7.** Hypothesis testing of the direct effects

Hypothesis	Relationship	Std Beta	Std Error	T-Values	P-Values	BCI LL	BCI UL	F-sq	Decision
H1	INT-GSCM -> SBP	0.414	0.062	6.661	0.000	0.335	0.496	0.13	Supported
H2	EXT-GSCM -> SBP	0.233	0.064	3.629	0.000	0.15	0.313	0.04	Supported
H3	SC-> SBP	0.133	0.047	2.838	0.002	0.069	0.188	0.025	Supported
H4	INT-GSCM*SC -> SBP	-0.087	0.062	0.912	0.181	-0.169	0.077	0.005	Not supported
H5	EXT-GSCM*SC -> SBP	0.233	0.064	3.629	0.332	-0.145	0.127	0.001	Not supported

Additionally, this study seeks to add a relationship that has not yet been examined or investigated in the Jordanian SMEs sector, in terms of the moderation role of SC between the relationships of GSCM practices on sustainable business performance. Second, it extends studies on sustainable performance by examining the moderation role of SC impact on the implementation of GSCM practices in SMEs to achieve sustainable performance including social, economic, and environmental, indeed, the identification of these relations specifies theoretical validation of GSCM practices and utilizing the relationships with the suppliers in the SMEs sector, hence increasing our understanding of how SMEs should tactically link their GSCM practices and manage their relationships to enhance their sustainability performance. Third, given that previous empirical research on linking GSCM practices, SC, and sustainability performance is focused on developed countries [11, 97], this study aimed to add value to the previous literature, carrying evidence from a developing nation's viewpoint (i.e., the Jordanian context) which complements the existing evidence from developed nations. Hence, this research also extends GSCM studies to a more varied set of nations. Lastly, it can be claimed that this research contributes to the previous literature by examining what, until now, was measured as a western-oriented instrument in the context of the middle east, where there has been a defined scarcity of studies focused on the theoretical model of the current study.

## 5.2 Practical implications

In terms of practical implications, this research can contribute to achieving excellent sustainability performance outcomes for SMEs by guiding their owners and managers to link general strategic purposes with specific GSCM practices. This association can generate the deep participation of suppliers in shaping sustainability practices. First, an empirically based argument is delineated for purchasing and supply chain managers of SMEs to invest and implement GSCM practices which, as such actions may improve the SMEs sustainability business performance. Next, the research findings serve as a road map for SME managers to stress synergetic investments in GSCM, such as initiatives to improve suppliers' motivation and knowledge exchange. The SMEs managers and owners should then continue with dedicated investments in GSCM and, consequently, the creation of a multi-functional approach to adoption of the green management.

Subsequently, the findings of this study also provide advice to SME managers and owners who pursue the concurrent enhancement of sustainability performance. Notably, the INT-GSCM and EXT-GSCM practices certainly influence sustainability performances, atypical emphasis may be required on these concerns because the combination of environmental standards outside of organizational boundaries does not adequately indicate an organization's capabilities. For example, SME supply chain executives are required to pay attention to investing in their supplier networks. Likewise, the executive supervision must be conscious that resistance to information exchange can be a stumbling block to effective GSCM applications; this difficulty can be evaded through effective interaction with the supply chain partners, alongside providing sufficient information. It is possible to presume that the true value of this research is the availability of empirical

data that SMEs may use to determine which activities to do in order to have a greater influence on the sustainability aspects.

At last, based on this study, it is probable to propose specific enhancements in the cooperation procedures with the suppliers in SMEs. For example, part of cooperation activities must include an indicator of the strengthening of their relationships, as suggested by RV, the critical resources are not only stored within a sole organization but may extend organization boundaries and be embedded in inter-organization routines and procedures, or other words, the supply chain [29]. Hence, SMEs reporting on their influence on the various aspects of sustainability must take into account sustainability cooperation through social networks.

## 6. LIMITATIONS AND FUTURE RESEARCH

This research has limitations regarding methodology and theory, which should be rectified in future studies. The first issue with this research is its cross-sectional approach, whereby the data were obtained at a single point in time. However, the involvement of the practices of GSCM may take time before sustainability behaviors are at the maximum. Hence, the use of longitudinal analysis may be employed by future research, which may allow the researchers to identify the changes that occur in the SMEs sustainability behaviors over time after the application of the practices of GSCM.

The second limitation of this study is that it covered only SMEs from the JIE. Hence, future studies should consider other Jordanian SMEs because they also switch to sustainable behavior adoption; the Jordanian government requires all establishments to adopt the sustainability approach. This will insure the generalizability of the findings. Further, this study should be replicated in different regions and cultures to allow the development of more universal measures of GSCM in SMEs.

The third limitation is that this research only employed a quantitative approach. So, the use of a mixed-method approach to investigate the moderation impact of SC between GSCM and SBP outcomes will increase the depth and breadth of the findings obtained. Next, the moderation impact of SC was examined in this study regarding the association between GSCM practices and SBP. In order to increase the understanding of the relationship between the constructs, future studies should consider including other variables as potential moderators, for instance, institutional pressure [101], firm size [102], and environmental management systems [103]. In addition, future studies should consider other practices of GSCM, including product lifecycle analysis, industrial ecology, industrial ecosystems, extended producer responsibility, and product stewardship [104], regarding their impact on SBP among Jordanian SMEs. The use of different indicators may also be considered in future studies.

At last, Jordan entails a big population with complex activities that potentially impact the SBP of the SMEs. However, this study was only focusing on JIE. In Jordan, SMEs are important because they run the future economy, aside from possessing the vigor and enthusiasm to acquire and implement sustainability activities within societal functions. Notably, the overall SBP of SMEs is a result of the trans-disciplinary contribution of various parties like top management, suppliers, government, and non-governmental organizations (NGOs). Hence, managers of other

sustainability institutions, like NGOs, may be considered owing to the varied perspectives of varied firms.

## 7. CONCLUSION

The impact of GSCM practices and sustainability performance has not been acknowledged much attention within the Jordanian context, so addressing this issue was deemed required. Previous literature reported several findings on the impact of the application of GSCM practices on sustainability performance in diverse industries and using various aspects of sustainable business performance.

This research shed light on the role of GSCM practices being applied by SMEs in Jordan and their influence on sustainability outcomes in an effort to encourage them to maintain an environmentally and socially benign position while continuously trying to improve the economic antecedents. In addition, also examines the Moderating role of SC in the influence of GSCM on SBP. Using PLS-SEM this research found that sustainability outcomes positively enhanced when implementing GSCM practices both INT-GSCM and EXT-GSCM; therefore, SMEs may need to interact closely with partners in the upstream and downstream supply chains from the design phases to disposal in order to improve the quality of their results and reduce lead times. Further, the results indicate that the SC does not moderate the relationships between GSCM practices and SBP.

According to the findings, this study implies that adopting GSCM practices also helps achieve social performance outcomes such as social health, safety, and satisfaction. Therefore, SMEs need to effectively engage and participate in EXT-GSCM and INT-GSCM, such as reverse logistics operations, environmental cooperation, eco-design, green purchasing, etc. Notably, the achievement of environmental performance through implementing GSCM practices is determined by integrating eco-design with other INT-GSCM practices such as green purchasing. The research results are also consistent with recent studies, which have indicated that organizations are more likely to perform well in terms of economic, social, and environmental sustainability performance with the implementation of INT-GSCM and EXT-GSCM [139].

Overall, it can be concluded that GSCM practices positively impact sustainability performance outcomes. However, if the SMEs are concerned with certain aspects of sustainability, for example, INT-GSCM (environmental management and eco-design) and EXT-GSCM (reverse logistics, environmental cooperation, and green purchasing) are the most vital components that positively influence such aspects. Furthermore, if SMEs are more concerned about financial outcomes, green purchasing activities only can help enhance the SMEs economic sustainability performance outcomes. The study findings also demonstrate that SC plays a vital role in enhancing sustainability business performance. Hence, societal-oriented SMEs that intend to develop social acumen to preserve their organizational image must need to focus on both SC and GSCM practices.

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## APPENDIX A: MEASUREMENT ITEMS

### Green Supply Chain Management

#### Internal Green Supply Chain Management:

1. Design of products for reduced consumption of material/energy.
2. Design of products for reuse, recycle, recovery of material, component parts.
3. Design of products to avoid or reduce use of hazardous of products.
4. Top-level management's dedication to GSCM.
5. Support for GSCM from mid-level managers.
6. The internal performance evaluation system incorporates environmental factor.

#### External Green Supply Chain Management:

7. Use of remanufacturing.
8. Recovery of the company's end-of-life products.
9. Taking back packaging.
10. Providing design specification to suppliers that include environmental requirements for purchased items.
11. Suppliers are selected using environmental criteria.
12. Require suppliers to use environmental packaging (non-hazardous and degradable).
13. Cooperation with suppliers and customers for eco-design.
14. Cooperation with suppliers and customers for cleaner production.
15. Cooperation with suppliers and customers for green packaging.

#### Sustainable Business Performance:

16. The overall environmental performance.
17. The resource consumption e.g., water, electricity, and gas.
18. Decreased the cost of materials purchasing.
19. Decreased the cost of energy consumption.
20. Employee job satisfaction.

#### Social Capital:

21. Similarity corporate culture/values and management styles.
22. Similarity philosophies/approaches to business dealings.
23. Compatible goals and objectives.
24. Same vision of business in the relationship.
25. Sharing relevant and timely information.
26. Interacting in a frequent and intensive manner.
27. Solving problems jointly.
28. Sharing and transferring knowledge and knowhow.
29. Trusting each other.
30. A family-like relationship.
31. Mutual respect.
32. long-term partnership.
33. Reciprocal to each other.

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