Effect of green supply chain management practices and operational performance on sustainable competitive advantage

Efeito das práticas verdes de gestão da cadeia de suprimentos e do desempenho operacional na vantagem competitiva sustentável

Efecto de las prácticas ecológicas de gestión de la cadena de suministro y del rendimiento operativo en la ventaja competitiva sostenible

DOI:10.34117/bjdv10n6-019

Submitted: May 07th, 2024
Approved: May 28th, 2024

Charles Tsikada
Master of Commerce Degree in Strategic Management
Institution: Middle East college
Address: Oman
E-mail: tsikadac@mail.com

Shahid Imran
Masters in Logistics and Supply Chain Management
Institution: Malaysia University of Science and Technology (MUST)
Address: Selangor, Malásia
E-mail: shahid.imran@phd.must.edu.my

Reason Masengu
PhD in Marketing
Institution: Middle East college
Address: Oman
E-mail: masengumasengu@yahoo.com

Earnest Mugoni
Masters in Logistics and Supply Chain Management
Institution: Marondera University of Agricultural Sciences and Technology
Address: Zimbabwe
E-mail: ernmugoni@gmail.com

ABSTRACT
Green supply chain management (GSCM) practices have been accepted as strategy for improving overall performance. Adopting GSCM practices is not just about short-term gains, but it is about ensuring the long-term viability of the business. Companies can future-proof their businesses against environmental challenges and market fluctuation if they integrate sustainability into their supply chain operations. However, the actual impact of GSCM practices and operational performance (OP) on sustainable competitive advantage (SCA) is largely unknown. This study investigated how operational performance (OP) mediates the link between GSCM practices and SCA in the Oman fast moving consumer goods (FMCG) industry. The study follows the positivism research philosophy with quantitative research. A pilot test was conducted to assess the reliability
of the research instrument used. A convenience sampling technique was administered to collect data. The data extracted from 289 respondents who were employed in the (FMCG) industry in Oman. The validity and reliability were performed. Relationships were tested using the structural equation modelling. The study found that using OP as a mediator variable, GSCM practices had a considerable indirect impact on SCA. OP strengthens the link between GSCM practices and SCA. Results indicate that all the constructs had a positive relationship with one another, which improved OP and created a long-lasting competitive advantage. This study developed a conceptual model that can serve as a guide for decision-making in supply chain management. This model can help managers identify areas for improvement, prioritize initiatives, and develop strategic plans to enhance sustainability performance. GSCM practices must be used by supply chain managers to improve overall performance. The findings might affect future research inquiries. The study used quantitative approach. Quantitative research relies on predefined variables and hypotheses, which may overlook unforeseen factors that influence GSCM practices.

**Keywords:** green supply chain management practices, operational performance, sustainable competitive advantage.

**RESUMO**

As práticas de gestão da cadeia de abastecimento verde (GSCM) foram aceites como estratégia para melhorar o desempenho global. Adotar práticas de GSCM não é apenas sobre ganhos de curto prazo, mas é sobre garantir a viabilidade a longo prazo do negócio. As empresas podem preparar seus negócios para o futuro contra os desafios ambientais e a flutuação do mercado se integrarem sustentabilidade em suas operações da cadeia de fornecimento. No entanto, o impacto real das práticas e do desempenho operacional (PO) da GSCM na vantagem competitiva sustentável (SCA) é amplamente desconhecido. Este estudo investigou como o desempenho operacional (OP) mediu a ligação entre as práticas da GSCM e a SCA na indústria de bens de consumo em movimento rápido de Omã (FMCG). O estudo segue a filosofia da pesquisa positivista com a pesquisa quantitativa. Foi realizado um teste piloto para avaliar a confiabilidade do instrumento de pesquisa utilizado. Uma técnica de amostragem de conveniência foi administrada para coletar dados. Os dados foram extraídos de 289 entrevistados que trabalhavam na indústria (FMCG) em Omã. A validade e a confiabilidade foram realizadas. As relações foram testadas usando a modelagem de equações estruturais. O estudo constatou que a utilização da OP como variável mediadora, as práticas de GSCM tiveram um impacto indireto considerável na SCA. A OP reforça a ligação entre as práticas da GSCM e a SCA. Os resultados indicam que todos os construtores tinham uma relação positiva entre si, o que melhorou a OP e criou uma vantagem concorrencial duradoura. Este estudo desenvolveu um modelo conceitual que pode servir como guia para a tomada de decisões na gestão da cadeia de suprimentos. Esse modelo pode ajudar os gerentes a identificar áreas para melhoria, priorizar iniciativas e desenvolver planos estratégicos para melhorar o desempenho da sustentabilidade. As práticas de GSCM devem ser usadas pelos gerentes da cadeia de suprimento para melhorar o desempenho geral. Os resultados podem afetar pesquisas futuras. O estudo utilizou uma abordagem quantitativa. A pesquisa quantitativa baseia-se em variáveis e hipóteses predefinidas, que podem ignorar fatores imprevistos que influenciam as práticas de GSCM.

**Palavras-chave:** práticas ecológicas de gestão da cadeia de suprimentos, desempenho operacional, vantagem competitiva sustentável.
RESUMEN
Se han aceptado prácticas de gestión ecológica de la cadena de suministro (GSCM) como estrategia para mejorar el rendimiento general. La adopción de las prácticas del GSCM no se trata solo de beneficios a corto plazo, sino de garantizar la viabilidad a largo plazo del negocio. Las empresas pueden preparar sus negocios para el futuro frente a los desafíos ambientales y las fluctuaciones del mercado si integran la sostenibilidad en sus operaciones de cadena de suministro. Sin embargo, se desconoce en gran medida el impacto real de las prácticas del GSCM y el rendimiento operativo (PO) en la ventaja competitiva sostenible (SCA). Este estudio investigó cómo el rendimiento operativo (OP) media el vínculo entre las prácticas de GSCM y SCA en la industria de bienes de consumo de movimiento rápido de Omán (FMCG). El estudio sigue la filosofía de la investigación del positivismo con la investigación cuantitativa. Se llevó a cabo una prueba piloto para evaluar la fiabilidad del instrumento de investigación utilizado. Se aplicó una técnica de muestreo por conveniencia para la recolección de datos. Los datos se extrajeron de 289 encuestados que estaban empleados en la industria (FMCG) en Omán. Se realizó la validez y confiabilidad. Las relaciones se probaron utilizando el modelado de ecuaciones estructurales. El estudio encontró que el uso de OP como variable mediadora, las prácticas de GSCM tuvieron un impacto indirecto considerable en SCA. OP refuerza el vínculo entre las prácticas de GSCM y SCA. Los resultados indican que todos los constructos tuvieron una relación positiva entre sí, lo que mejoró OP y creó una ventaja competitiva duradera. Este estudio desarrolló un modelo conceptual que puede servir como guía para la toma de decisiones en la gestión de la cadena de suministro. Este modelo puede ayudar a los gerentes a identificar áreas de mejora, priorizar iniciativas y desarrollar planes estratégicos para mejorar el desempeño de la sostenibilidad. Los gestores de la cadena de suministro deben utilizar las prácticas del GSCM para mejorar el rendimiento general. Los hallazgos podrían afectar futuras investigaciones. El estudio utilizó un enfoque cuantitativo. La investigación cuantitativa se basa en variables e hipótesis predefinidas, que pueden pasar por alto factores imprevistos que influyen en las prácticas del GSCM.

Palabras clave: prácticas de gestión de la cadena de suministro verde, desempeño operativo, ventaja competitiva sostenible.

1 INTRODUCTION AND RESEARCH CONTEXTUALISATION

Businesses all around the world face significant obstacles to stay competitive. According to Luthra et al. (2017), there is a growing trend among companies to adopt environmentally sustainable practices; this practice is also known as ‘going green’. This involves prioritising resource efficiency and minimising negative impacts on the environment, human health, and productivity (Chavez et al., 2022). Companies can achieve this via the adoption of GSCM practices (Sheng et al., 2023; Xu et al., 2023). The incorporation of this green perspective into strategic, functional, and operational levels of companies is inevitable (Zhu et al., 2017). Testa et al. (2010) mentioned that consumers
demand for environmentally responsible products that abide by environmental regulations.

GSCM practices include a variety of strategies intended to improve environmental performance (EP), while ensuring that they continue to be compatible with environmental laws (Appiah et al., 2022). Hsu and Hu (2008) define GSCM practices as a proactive approach to achieving EP in line with environmental regulations. For Ghadimi et al. (2016), these green practices have expanded from individual companies to entire supply chains. Nowadays, therefore, supply chain management is a crucial area of study; organisations compete as supply chains – rather than as standalone entities – to acquire a SCA (Ashby et al., 2012). This increasing focus on environmental sustainability is placing pressure on supply chains to become more environmentally friendly (Alzoubi et al., 2020; Pinto, 2020). The trend of using a green practice to manage resources in the supply chain has thus made environmental issues and GSCM practices a key topic in research.

OP is significantly impacted by GSCM practices. The ability of a business to provide services like just-in-time delivery and inventory control to make products easily available to customers is one way that operational competency is improved. It aids in swiftly adjusting to the distribution network to meet demands (Derwik & Hellström, 2017). Other operational competences include delivery, pricing, and design (Saragih et al., 2020). The ability to lower and control costs is a component of the cost competency. The ability of a company to modify product design and develop new product is known as design competency. Similarly, offering products with quicker delivery is an expertise in delivery.

According to Sroufe (2003), an environmental management system (EMS) has an impact on OP parameters, such as quality, cost, and production waste reduction. The effects of EMS on cost effectiveness, quality, delivery, flexibility, and improved reputation all contribute to the improvement of the OP (Melnyk et al., 2003). Yang et al. (2015) found that proactive environmental management programmes not only improve cost, but also enhance delivery competitiveness. Meng et al. (2010) found that adopting green logistics management, such as internal general environmental management techniques, can enhance OP, including product quality and aspects related to delivery, such as lead time. Alexandrou et al. (2022) highlight that transport companies using GSCM practices behave better economically. According to Eltayeb et al. (2011), companies can increase production efficiency by cutting waste and pollution, reducing
operational expenses, and enhancing product quality and delivery. Thus far, the connection relating GSCM practices and OP has produced ambiguous conclusions (Lai & Wong, 2012; Rao & Holt, 2005a; Vachon & Klassen, 2008b). There is, therefore, a need to research the relationships between GSCM practices and dimensions of OP (Vachon & Klassen, 2008b).

It is believed that OP of a firm has the potential to be a source of competitive advantage. Competitiveness is the capacity to conceptualise, manufacture and market goods and services that are superior to those provided by rivals. Since OP may contribute to firm competitiveness (Barney, 1991; Tracey et al., 1999; Vickery et al., 1993), it is related to competitive advantage. Somsuk (2014) posits that GSCM practices are the main sources of the competitive advantages possessed by companies. It is crucial for a company to include environmental considerations into SCM if it wants to gain a competitive edge (Rao & Holt, 2005a; Zhu & Sarkis, 2010). Environmental management has been proven to increase competitiveness in terms of price, delivery, and quality (Yang et al., 2015). Thus, GSCM adoption results in a competitive advantage (Zhu et al., 2013).

There is a handful of research that has examined OP as a mediator in the adoption of GSCM practices. Al-Ghwayeen and Abdallah (2018) investigate how operational and environmental performance affect the relationship between GSCM and business performance. Feng et al. (2018a) investigate the relationship between GSCM and financial success, and how environmental and operational performance mediates that relationship. Zhu et al. (2010) investigate how OP affects the links between GSCM-environmental performance and GSCM-financial performance. Visamitanan and Assarut (2021) found that OP mediates the impact of GSCM practices on employee engagement and organisational commitment. Findings show that GSCM practices can be more widely adopted when OP is strong. Implementation of GSCM practices improves OP (Famiyeh et al., 2018; Hong et al., 2020) and competitive advantage (Yang et al., 2015). However, there is little research on the intervening consequences of OP on the link concerning GSCM practices and SCA, especially in Oman.

Oman has a growing FMCG market driven by population growth, rising disposable incomes, and changing consumer preferences. The economy of Oman relies on oil and natural gas exports. However, decline in global oil prices has posed fiscal challenges. The government takes steps to diversify the economy away from oil dependency. These initiatives include promoting non-oil industries, such as logistics and manufacturing. The FMCG sector is likely to ensure the efficient supply of food to meet
the needs of consumers. There is a need to investigate the influence of GSCM practices on OP and SCA in developing country; Oman has been chosen for this study. This is because the discussion in Oman about how GSCM practices affect OP and SCA is unorganized.

2 LITERATURE REVIEW

2.1 GSCM PRACTICES

GSCM practices mean the integration of ecological sustainability practices into aspects of supply chain management (Eltayeb et al., 2011). By incorporating environmental concerns into the concept of SCM, the perspective has been expanded to incorporate environmental awareness at every stage, from the organisation’s stores and inventory management and transport activities to delivery to the final client (Simpson & Power, 2005). Beamon (1999) posits that a ‘green supply chain’ is a set of activities that aim to reduce the damage a product does to the environment over its entire lifecycle. These activities include green design, resource preservation, recycle and reuse.

GSCM practices, according to Srivastava (2007), encompass eco-friendly design, sustainable procurement, green production, environmentally friendly distribution, green logistics marketing and reverse logistics. GSCM practices include all phases of the manufactured goods’ lifetime, including procuring, manufacture, distribution, usage, and disposal of materials (Ashrafi et al., 2019; Walker & Webster, 2004). GSCM practices include a wide range of activities, including design, supply, manufacture, assembly, packaging, distribution, green information systems and logistics (Eltayeb & Zailani, 2014). Stakeholders in the supply chain are not only responsible for reducing environmental impacts produced by their own activities, but also for reducing environmental impacts resulting from the actions of their suppliers.

Scholars and specialists have given close by thought to GSCM practices. Previous research has uncovered a range of GSCM practices. Among the practices mentioned are internal environmental management, green information systems, eco-design, green purchasing, customer participation on environmental issues, and investment recovery. However, only eco-design, eco-purchasing, eco-manufacturing, and green information systems were consciously selected for this study. These GSCM practices are summarized in the discussion that follows.
2.2 GREEN PURCHASING (GP)

Green purchasing reduces waste and supports recycling as well as reclamation of acquired commodities without compromising their performance (Narasimhan & Schoenherr, 2012). Companies cannot consider their processes as being green unless they combine environmental goals with procurement (Sönnichsen & Clement, 2020). Green purchasing also evaluates suppliers’ environmental performance and offers advice on how to improve it. Ghosh (2019) notes that an ecologically conscious procurement function undertakes a mentoring starring role that benefits both the buyer and the vendor. Green purchasing can thus help suppliers improve environmental performance (Narasimhan & Schoenherr, 2012).

2.3 GREEN MANUFACTURING (GM)

Pressure from the community and governments should prompt businesses to examine their production processes. Green manufacturing has been described as a system-wide and integrated approach to reducing waste streams associated with the design, manufacture, usage, and disposal of items and materials (Handfield et al., 1997). It implements a production technology programme and process route that uses the fewest possible resources and the least amount of energy to produce the least amount of environmental pollution. To comply with the requirements for green manufacturing, which also include the elimination of any potential safety concerns and health risks for employees and product users, environmental pollution, waste recycling, and waste disposal during the production process must all be as low as feasible (Gao et al., 2022). There are not many studies on green manufacturing. The existing ones can be divided into two groups.

The first set of works addresses the idea of green manufacturing in general. Mohanty and Deshmukh (2010) highlight the importance of green productivity as helping companies have a competitive edge. For Jovane et al. (2008), green and sustainable manufacturing represents a future paradigm having a business model based on leveraging new material technologies to design for the environment. Burke and Gaughran (2007) suggest a sustainable framework to implement green manufacturing.
The second category comprises works that offer different analytical tools and models to implement green manufacturing at various levels (Deif, 2011). Fiksel (1996) gathered such tools that have emerged from product/process design research for green manufacturing. The Life Cycle Analysis (LCA), Design for the Environment (DfE), screening techniques and risk analysis are a few examples of these technologies.

2.4 GREEN INFORMATION SYSTEM (GIS)

According to Green et al. (2012), GIS refers to the ‘design and implementation of information systems that contribute to sustainable business processes. Wang et al. (2021) posit that chief information officers view environmentally friendly information technology as the most significant strategic goal. Green et al. (2012) indicated that, given its cross-functional view of the entire organisation and ability to understand, change and reinvent business processes to better support sustainable practices, GIS has a significant role in any environmentally conscious organisations. Product stewardship can also be made easier with the use of information systems as these can provide companies with information that is essential to their recycling and remanufacturing operations. As a result, environmentally friendly information technology plays a significant part in the path that a company takes to get GSCM certification.

2.5 ECO-DESIGN (ED)

The goal of eco-design is to create goods with the least amount of energy and material use possible. This encourages the recycling of component equipment. As a result, less hazardous materials are used during the manufacturing process. It is estimated that approximately 80 per cent of product-related effects on the environment emanate from the design (Büyüközkan & Ifi, 2012). Therefore, it was important to ensure that products comprise contents that can be reused or recycled. Eco-design falls into two main categories: product-related design and packaging-related design. Furthermore, environment-related limits must be taken into consideration when designing environmentally friendly products. The ever-changing environmental trends and regulations further complicate green product design. Hence, firms can benefit from the first-mover advantage by introducing green innovations in product design. Cost-saving opportunities related to design tend to be greater at the beginning of the supply chain, and
buying organisations need to seek opportunities to utilise recycled and reused components actively. Companies and their suppliers should collaborate to ensure that they use green packaging for their products (Zhu et al., 2008). Green packaging guarantees that containers are recyclable and reused, limiting waste by eliminating single-use containers and hazardous materials.

2.6 OPERATIONAL PERFORMANCE (OP)

OP is defined as the performance related to a firm’s internal operations, such as productivity, product quality and customer satisfaction. Hasan and Rahman (2022) pointed out that OP metrics include the following: cost savings and increased efficiency, product quality improvement, increase in market share, new market opportunities, enhanced employee motivation and performance, and increase in sales. El-Khalil and Mezher (2020) concurred with Hasan and Rahman (2022) on quality and cost metrics while also adding some findings; these include productivity, morale, and delivery. It is deduced that operational performance is excellent when it has the capacity and ability to fulfil the customer’s demand. Fulfilling said demand includes timely and quick distribution of high-quality goods and services (Wong & McKercher, 2012). Similarly, profits and shares are improved through OP by enhancing operational efficiency (Hashmi & Akram, 2021). This is attained through the creation of new sales, improved productivity, and a reduction in costs. The profitability performance of a firm can be improved if it reduces its operating costs through lowering material usage, cutting acquisition costs, and handling as well as disposing products efficient (Hashmi & Akram, 2021).

2.7 SUSTAINABLE COMPETITIVE ADVANTAGE (SCA)

According to Economou and Chatzikonstantinou (2009) and Famiyeh et al. (2018) and Keong and Dastane (2019), maintaining a competitive advantage leads to higher production. Morgan et al. (2004) and Ray et al. (2004) posited that financial performance of the company and ability to preserve a competitive advantage are correlated. Keong and Dastane (2019) highlighted that a business has a SCA if it is following a value creation strategy that is different from that of any of its rivals, both present and future. It also has this advantage if its rivals lack the resources required to duplicate the strategy's success.
According to Barney (1991), the ability of a firm's competitive advantage to survive depends on the likelihood that it will not be imitated by other industry competitors. A competitive advantage is only maintained if a business endures after attempts to replicate it have failed (Lippman & Rumelt, 1982).

3 HYPOTHESES DEVELOPMENT

3.1 LINKAGE OF GSCM PRACTICES WITH OPERATIONAL PERFORMANCE

GSCM practices are anticipated to boost OP by raising product quality, lowering inventory levels, and increasing delivery accuracy (Zhu et al., 2013). Chien and Shih (2007) posit that these practices improve output and efficiency while also raising standards for the final product. The use of GSCM practices has a positive effect on OP in terms of on time delivery, and cost saving, according to Testa and Iraldo (2010). It is, therefore, possible to increase process effectiveness, recycle waste and attract new suppliers and customers with the help of GSCM practices as these enable companies to cut costs, speed up delivery and reduce inventory levels, all of which improve OP. Vachon and Klassen (2008a) assert that OP indicators including quality, delivery, and flexibility are connected to supplier cooperation on environmental concerns. The following hypothesis is put forth considering the arguments:

H1: GSCM practices have a positive impact on OP.

3.2 OPERATIONAL PERFORMANCE AND SUSTAINABLE COMPETITIVE ADVANTAGE

Companies seek to build relationships to achieve the required OP and competitiveness. SCA suggests that a company offers at least one of the following in comparison to rivals: lower prices, higher quality, better reliability, or quicker delivery (Kim et al., 2020). OP improves competitive advantages in terms of customer satisfaction and loyalty, as well as relationship efficiency. The degree to which one has a competitive edge can be directly correlated with how well they perform. Operational efficiency can hence positively impact the SCA of agricultural inputs in entrepreneurial marketing firms. However, the literature on the relationship between OP and SCA is still scarce and
unstructured. Therefore, the two indicators form a basis for advancing theoretical knowledge in the field of GSCM practices and closely related fields. Given the above arguments, the following hypothesis is proposed:

\[ H2: \text{OP has a positive impact on SCA}. \]

3.3 LINKAGE OF GSCM WITH SUSTAINABLE COMPETITIVE ADVANTAGE

Porter and Van Der Linde (1995) posited that a competitive advantage is achieved when a company provides more value to its customers than its competitors either through either cost leadership or differentiation. Barney (1991) stated that this advantage is achieved when a company is implementing a value-creating strategy which is not employed by a competitor; this can be done by combining resources and capabilities. Barney (1991) also stated that resources or capabilities can contribute to a sustained competitive advantage when they are simultaneously valuable, rare, imperfectly imitable, and non-substitutable.

According to Porter and Van Der Linde (1995), bringing environmental considerations into business is a source of a competitive advantage. When a company and its partners initiate green practices, the two become involved a greener supply chain that can be distinct from others in the business. This is to say that a company’s upstream and downstream supply chain members would adopt environment-friendly practices once the company itself does so. Environmentally friendly practices can generate values to actors involved in the supply chain, and GSCM practices can be considered as initiatives that will improve sustainable competitive advantage in terms of lower costs, enhanced reputation, and legitimacy, secured future position and long-term growth (Hart & Dowell, 2011; Hart & Milstein, 2003). Companies which invest in environmentally friendly practices improve their corporate brand images, develop new markets, and increase their competitive advantages. Companies that improve their brand image by incorporating green practices can also charge relatively high price for their products.

Various studies use different measurement frameworks for competitive outcomes. Profitability was viewed by Testa and Iraldo (2010) as the goal of competition. To evaluate the same, Rao and Holt (2005) took factors like increased effectiveness, improved quality, increased productivity, and cost savings into consideration. Jacobs et al. (2010) found that even an announcement of firms’ green initiatives and certifications
positively affect their shareholder value. Stekelorum et al. (2021) posited that companies should implement green procurement, green production, green delivery, and green packaging. This will allow them to maximise environmental conservation and minimise adverse environmental impacts, such as global warming. It will also lead to a sustainable advantage. Yang et al. (2015) investigated the connections concerning internal GSCM practices, green performance, and firm competitiveness. It was discovered that GSCM practices influence green performance, which in turn helps increase firm competitiveness. Towards contribute to this debate, the following can be hypothesised:

\[H3: \text{GSCM practices have a positive impact on SCA.}\]

3.4 MEDIATING EFFECT OF OPERATIONAL PERFORMANCE ON SUSTAINABLE COMPETITIVE ADVANTAGE

A review of the sources indicates that the implementation of GSCM practices in an organisation ultimately influence SCA. However, to measure the direct effect of GSCM practices on the SCA, it is necessary to take into consideration a third variable – OP; this is because it has a arbitrating consequence on the connection concerning GSCM practices and SCA. In other words, instead of a direct influence on SCA, GSCM practices first affect OP that, in turn, influences SCA.

This study assumed that the OP is a potentially significant mediator between GSCM practices and SCA. However, the relationship between the GSCM practices, OP and SCA has not been sufficiently discussed. Khan et al. (2022) examine the impact of GSCM practices on OP using the intercession of technological improvement. Al-Ghwayeen and Abdallah (2018) looked at the role that EP played in intervening the relationship involving export performance in addition GSCM practices. An investigation of the effects of GSCM practices on company reputation with the intervening task of green information system was undertaken by Aslam et al. (2019). Shafique et al. (2017) researched on impact of GSCM practices on OP with facilitating responsibility of institutional pressure and intervening impact of green innovation. Supply chain quality integration and green logistics management were examined as potential mediators (Afum et al., 2022). Aityassine et al. (2021) investigated the role that just-in-time played in mediating the link between GSCM practices and OP. Research on the intermediating role of OP on the relationship involving GSCM practices and SCA is far less common in the literature. Given the above arguments, the following hypothesis is proposed:
H4: The effect of GSCM practices on SCA is mediated through OP.

3.5 CONCEPTUAL FRAMEWORK

The study investigates how GSCM practices affect OP and SCA in the fast-moving consumer goods sector in Oman. Additionally, the relationship between GSCM practices and SCA is examined, as well as the mediating role of OP in that relationship. The current research is based on the conceptual framework proposed in Figure 1.1. In particular, the current study aims to answer the following objectives:

a) to investigate the influence of GSCM practices on OP of the FMCG industry in Oman;
b) to assess the relationship between OP and the attainment of SCA within the FMCG industry in Oman;c) to examine the influence of GSCM practices on the development of SCA within the FMCG industry in Oman;d) to analyse the intervening role of OP in the relationship concerning GSCM practices and the attainment of SCA within the FMCG industry in Oman.

In this case, there are direct relationships (e.g., concerning GSCM practices and OP, between OP and SCA, and between GSCM practices and SCA) as well as indirect relationships (e.g., between GSCM practices and SCA which is significantly mediated by OP). Three latent variables are identified, namely GSCM practices, OP, and SCA. GSCM practices are identified as the independent variable, while SCA is taken as the dependent variable. OP is the intervening variable. The model incorporates four hypotheses. The study included 12 measuring items in a structured questionnaire, among which five items pertaining to GSCM practices, four items to the OP, and four items to the SCA. The items are measured using a five-point Likert scale with a different measurement scale for each section. The scale ranged from strongly disagree to strongly agree. The research hypotheses, which encompass GSCM practices, OP, and SCA, are displayed in Figure 1.
4 RESEARCH DESIGN

A summary of the research design, sample, instrumentation, and data analysis is given in this section. To analyse variables and their interactions objectively, quantitative research was applied. A cross-section survey was used towards gathering the data, and participants received questionnaires once throughout the research period. The study questions and hypotheses for the quantitative approach were created using a theoretical framework.

4.1 QUESTIONNAIRE AND MEASURES

This research administered a questionnaire towards gathering information from the participants. A literature review was conducted to establish the content validity of the measurement scales. The research instrument was drafted in English to ensure consistency across languages. Participants were questioned to indicate their agreement or disagreement with the assertions provided using a five-point Likert scale. The questionnaire was organised around the following sections: Section A collected data on socio-demographic information, including gender composition and age; Section B obtained data on the implementation levels of GSCM practices; Section C collected data on the consequence of GSCM practices on OP; lastly, Section D collected data on SCA. The research questions and their sources are listed in Table 1. A cover letter was included.
with the questionnaire; it explained the objective of the study, provided instructions for completion, and assured that the collected data would be used solely for purposes of scientific research.

Table 1 - Measurement scales and their sources

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
<th>Sources of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Supply Chain Management Practices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSCMP1</td>
<td>Collaboration with suppliers for green design.</td>
<td>Zhu et al. (2013); Matos and Hall (2007); Zhu et al. (2008); Khan et al. (2022)</td>
</tr>
<tr>
<td>GSCMP2</td>
<td>Eco labelling of products.</td>
<td></td>
</tr>
<tr>
<td>GSCMP3</td>
<td>Second-tier supplier environmentally friendly practice evaluation.</td>
<td></td>
</tr>
<tr>
<td>GSCMP4</td>
<td>Collaboration across functions to improve the environment.</td>
<td></td>
</tr>
<tr>
<td>GSCMP5</td>
<td>Commitment of GSCM from senior managers.</td>
<td></td>
</tr>
<tr>
<td>Operational Performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP1</td>
<td>Increase amount of goods delivered on time</td>
<td>Zhu et al. (2008)</td>
</tr>
<tr>
<td>OP2</td>
<td>Respond quickly to changes in market demand.</td>
<td></td>
</tr>
<tr>
<td>OP3</td>
<td>Operational unit costs are steadily falling.</td>
<td></td>
</tr>
<tr>
<td>OP4</td>
<td>Comply with the delivery dates and quantities.</td>
<td></td>
</tr>
<tr>
<td>Sustainable Competitive Advantage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCA1</td>
<td>Ability to deliver high-quality goods to customers.</td>
<td>Jia and Wang (2018); Novitasari and Agustia (2022)</td>
</tr>
<tr>
<td>SCA2</td>
<td>Ability to provide customers with better-priced products.</td>
<td></td>
</tr>
<tr>
<td>SCA3</td>
<td>New features are routinely introduced into the market to maintain a strong competitive position.</td>
<td></td>
</tr>
<tr>
<td>SCA4</td>
<td>The capacity to satisfy the needs of customers with products.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author (2023)

4.2 SAMPLING AND DATA COLLECTION

The study was conducted in Muscat, the capital city of Oman. A list of nine companies in the FCMG industry was extracted from the Ministry of Commerce, Industry, and Investment Promotion in Oman. Of these, only four companies were purposively chosen for this study. Each company had been using GSCM practices for at least 5–15 years. A list of 480 respondents was taken from the databases of the companies. Convenient sampling was employed for this study. This sample size was appropriate for this data analysis. The data collection period ran from September 11 through November 22, 2022. A self-administered questionnaire was used.

The participants in this study completed 289 research questionnaires. Of all the respondents, 60.21 per cent responded to the survey. Results indicate that 65 per cent (n=187) of respondents were males, while 35 per cent (n=102) were female. The FMCG industry is hence dominated by males in Oman. Results suggest that 53 per cent (n=152)
were aged between 36 and 45, 21 per cent (n=61) between 46 and 55, 14 per cent (n=41) between 26 and 35.6 per cent (n=16) were less than 26 years old; lastly, 6 per cent (n=19) were more than 55 years old. Most participants were aged between 36 and 45 years. Results show that 11 per cent (n=32) of respondents had completed primary level education, 28 per cent (n=81) had secondary school certificates, 20 per cent (n=57) had degrees, 36 per cent (n=103) had diplomas and 5 per cent (n=16) held credentials higher than a bachelor’s degree. Most respondents had completed a diploma, which meant that they could interpret the survey questions and provide relevant responses. In terms of experience, results show that 3 per cent (n=9) of the respondents had less than one year, 8 per cent (n=23) had between 1–5 years, 56 per cent (n=161) had between 6–10 years, 25 per cent (n=72) had between 11–15 years and, lastly, 8 per cent (n=24) had more than 15 years. Most respondents had more than five years of experience in FMCG industry in Oman. They could provide qualified opinion about the green practices, operational efficiency, and competitiveness in Oman. Results demonstrated that 70 per cent (n=201) of respondents were employed as full-time workers and 30 per cent (n=88) were part-time employees. Thus, since most of the respondents were full-time employees, it was likely that an informed opinion would be given.

Ethical Considerations. Researchers have complied with ethical standards pertaining to confidentiality, informed consent and freedom of response, professionalism, honesty, and accuracy in accordance with the guidelines established by the Marketing Research Society (2021).

4.3 NORMALITY TEST

The Kolmogorov-Smirnov (K-S) and the Shapiro-Wilk (S-W) normality tests were used to ensure that all variables (GSCM practices, OP, and SCA) were normally distributed. These tests were conducted to determine whether parametric or non-parametric statistics should be used. Shapiro-Wilk’s tests were statistically significant for all latent constructs (p > 0.05) (Shapiro & Wilk, 1965). The test was done under the null hypothesis which suggested that data from sampled variables were normally distributed. In Table 2, results indicated that the matrix was not an identity matrix. It, therefore, allowed the factor analysis to be conducted as relationships between variables existed.
Table 2 - Normality Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>GSCMP1</td>
<td>.166</td>
<td>240</td>
</tr>
<tr>
<td>GSCMP2</td>
<td>.120</td>
<td>240</td>
</tr>
<tr>
<td>GSCMP3</td>
<td>.112</td>
<td>240</td>
</tr>
<tr>
<td>GSCMP4</td>
<td>.174</td>
<td>240</td>
</tr>
<tr>
<td>GSCMP5</td>
<td>.181</td>
<td>240</td>
</tr>
<tr>
<td>OP1</td>
<td>.123</td>
<td>240</td>
</tr>
<tr>
<td>OP2</td>
<td>.144</td>
<td>240</td>
</tr>
<tr>
<td>OP3</td>
<td>.171</td>
<td>240</td>
</tr>
<tr>
<td>OP4</td>
<td>.143</td>
<td>240</td>
</tr>
<tr>
<td>SCA1</td>
<td>.174</td>
<td>240</td>
</tr>
<tr>
<td>SCA2</td>
<td>.165</td>
<td>240</td>
</tr>
<tr>
<td>SCA3</td>
<td>.176</td>
<td>240</td>
</tr>
<tr>
<td>SCA4</td>
<td>.122</td>
<td>240</td>
</tr>
</tbody>
</table>

Source: Author (2023)

Table 2 presents the results of normality testing for three variables: OP, GSCM practices, and SCA. For the Kolmogorov-Smirnov test, the statistic value, and degrees of freedom (df) are provided along with the significance level (Sig.). For the Shapiro-Wilk test, the statistic value, df and significance level are provided. The last two columns show the skewness and kurtosis values for each variable. Based on the results of both normality tests, all three variables have p-values greater than 0.05, indicating that they are normally distributed. Additionally, the skewness and kurtosis values for all three variables are within the acceptable range of -2 to +2, further supporting the normality assumption. In summary, the data for the three variables appear to be normally distributed, which is an important assumption for many statistical analyses.

4.4 SAMPLE ADEQUACY

GSCM practices, OP, and SCA are three latent variables for which sample adequacy tests were conducted. The results are shown in Table 3. The first column shows the KMO measure, which assesses the overall sampling adequacy by measuring the proportion of variance among all variables that might have common variance. KMO values range from 0 to 1, and higher values indicate better sampling adequacy. The outcome of Bartlett’s test of sphericity, which examines whether the correlation matrix is an identity matrix and hence proves the variables are unrelated, is displayed in the second column. A significant p-value < 0.05 indicates the correlation matrix is substantially different from an identity matrix, and that the variables are related. For all three latent variables, the KMO values are relatively high, ranging from 0.855 to 0.950, indicating
that the sample is adequate for factor analysis. Additionally, all three variables have a statistically significant Bartlett’s test result (p < 0.05), indicating that the correlation matrix is significantly different from an identity matrix, and that the variables are related. The data for all three latent variables appears to be adequate for factor analysis, which can be used to investigate the underlying structure of the data and find any latent factors that might be impacting the observed variables, according to the results of the sample adequacy tests.

<table>
<thead>
<tr>
<th>Latent variable</th>
<th>Sample adequacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KMO Measure</td>
</tr>
<tr>
<td>Green supply chain management practices</td>
<td>0.857</td>
</tr>
<tr>
<td>Operational performance</td>
<td>0.855</td>
</tr>
<tr>
<td>Sustainable competitive advantage</td>
<td>0.950</td>
</tr>
</tbody>
</table>

Source: Author (2023)

4.5 VALIDITY AND RELIABILITY ANALYSIS

GSCM practices, OP, and SCA are the three latent variables whose validity and reliability study are shown in Table 4. It shows the item names followed by the descriptive statistics that include mean and standard deviation. The second column displays Cronbach’s alpha coefficient, which measures the internal consistency of the items within each latent variable. The third column shows composite reliability (CR), which assesses the reliability of the construct by considering the sum of each item’s loadings on the latent variable. The fourth column presents average variance extracted (AVE), which measures the amount of variance explained by the construct relative to measurement error. Finally, the last column displays the factor loadings, which represent the strength of the relationship between each item and its corresponding latent variable.

<table>
<thead>
<tr>
<th>Latent variable</th>
<th>Item</th>
<th>Descriptive Statistics</th>
<th>Cronbach Alpha</th>
<th>CR</th>
<th>AVE</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSCMP</td>
<td>GSCMP1</td>
<td>2.49</td>
<td>1.481</td>
<td>0.876</td>
<td>0.934</td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>GSCMP2</td>
<td>3.12</td>
<td>1.381</td>
<td>0.907</td>
<td>0.934</td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>GSCMP3</td>
<td>2.65</td>
<td>1.426</td>
<td>0.179</td>
<td>0.907</td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>GSCMP4</td>
<td>2.590</td>
<td>1.441</td>
<td>0.824</td>
<td>0.903</td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>GSCMP5</td>
<td>2.570</td>
<td>1.441</td>
<td>0.824</td>
<td>0.903</td>
<td>0.903</td>
</tr>
<tr>
<td>OP</td>
<td>OP1</td>
<td>2.77</td>
<td>1.342</td>
<td>0.907</td>
<td>0.934</td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>OP2</td>
<td>3.40</td>
<td>1.017</td>
<td>0.907</td>
<td>0.934</td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>OP3</td>
<td>2.61</td>
<td>1.415</td>
<td>0.907</td>
<td>0.934</td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>OP4</td>
<td>4.51</td>
<td>1.476</td>
<td>0.907</td>
<td>0.934</td>
<td>0.903</td>
</tr>
</tbody>
</table>
The results indicate that all three latent variables have good internal consistency, with Cronbach alpha coefficients extending from 0.781 to 0.876. Additionally, the CR values are all above the recommended threshold of 0.7, indicating good reliability. The AVE values are also satisfactory, ranging from 0.824 to 0.934, which indicates that the constructs explain a good amount of variance relative to measurement error. Finally, all items have significant factor loadings, ranging from 0.55 to 0.966, indicating that they are good measures of their corresponding constructs. The results of the validity and reliability analysis suggest that the measures used to assess the three latent variables have good psychometric properties and can be considered as reliable and valid measures of the constructs.

### 4.5.1 Coefficient of Determination (R²)

The R² of the model was checked and determined. The R² measures how much of the variation in the dependent variable can be predicted by the independent variables (Schumacker & Lomax, 2016). According to Chin (1998), substantial, moderate, and weak R² values are 0.67, 0.33, and 0.19, respectively. The R² values were found to be influenced indirectly by the predictor variables, resulting in a model with a weak to moderate explanatory capacity.

### 4.6 MODEL-FIT ANALYSIS

The results of the CFA and SEM and model-fit statistics are shown in Table 5. The goodness-of-fit of the model to the data is commonly assessed using fit indices.
Table 5 - Model-fit statistics

<table>
<thead>
<tr>
<th>Fit indices</th>
<th>Acceptable fit indices</th>
<th>CFA</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/df*</td>
<td>&lt; 3.0</td>
<td>2.214</td>
<td>2.232</td>
</tr>
<tr>
<td>GFI</td>
<td>&gt; 0.90</td>
<td>0.967</td>
<td>0.951</td>
</tr>
<tr>
<td>AGFI</td>
<td>&gt; 0.90</td>
<td>0.963</td>
<td>0.944</td>
</tr>
<tr>
<td>NFI</td>
<td>&gt; 0.90</td>
<td>0.909</td>
<td>0.919</td>
</tr>
<tr>
<td>TLI</td>
<td>&gt; 0.90</td>
<td>0.922</td>
<td>0.917</td>
</tr>
<tr>
<td>CFI</td>
<td>&gt; 0.90</td>
<td>0.950</td>
<td>0.969</td>
</tr>
<tr>
<td>RMSEA</td>
<td>&lt; 0.08</td>
<td>0.063</td>
<td>0.068</td>
</tr>
<tr>
<td>PCLOSE</td>
<td>0.01–0.05</td>
<td>0.014</td>
<td>0.017</td>
</tr>
<tr>
<td>SRMR</td>
<td>0.08–0.10</td>
<td>0.047</td>
<td>0.047</td>
</tr>
</tbody>
</table>

Source: Author (2023)

The first fit index, CMIN/df is the ratio of the chi-square goodness-of-fit test to the degrees of freedom. It indicates that the CFA model has a better fit than the SEM model, as the ratio is lower (2.214 vs. 2.232) and falls within the acceptable range of less than 3.0. Other fit indices include the GFI, AGFI, NFI, TLI, CFI, RMSEA, PCLOSE, and SRMR. These indices are used to evaluate the overall fit of the model. In general, a good fit is indicated by the values of GFI, AGFI, NFI, TLI and CFI greater than 0.90, and RMSEA less than 0.08, PCLOSE between 0.01–0.05, and SRMR between 0.08–0.10. The results indicate that the CFA model has a better fit than the SEM model in all the fit indices, except for the SRMR, where both models have the same value of 0.047, which is within the acceptable range. Overall, the findings imply that the CFA model offers a good fit to the data while the SEM model requires more work to enhance its data fit. The model-fit statistics provide important information for evaluating the validity of the measurement model and the structural model. The findings can help researchers in making decisions about the usefulness and applicability of the theoretical framework and research instrument.

4.7 HYPOTHESIS TESTING

In SmartPLS 4.0, SEM was used to investigate the structural linkages of hypothesised model (Figure 1). The bootstrap approach was used to verify the importance of the path coefficients. A standardised path coefficient must be more than 0.20 to be considered significant in the model and relevant to managerial decisions according to Wong (2013). The path coefficient is significant in SmartPLS at the default 5 per cent threshold of significance. The hypotheses were tested by examining the significance of the path coefficients (beta) between latent constructs. The greatest value indicates the biggest impact of the predictor (exogenous) latent variable on the dependent
(endogenous) latent variable (Wong, 2013). The t-value test must be used to evaluate the significance level of the value. The non-parametric bootstrapping approach was used to conduct the test.

<table>
<thead>
<tr>
<th>Path</th>
<th>Path Coefficient ($\beta$ value)</th>
<th>Confidence Interval</th>
<th>T-value</th>
<th>P-values</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSCMP→ OP</td>
<td>0.893</td>
<td>0.136</td>
<td>0.278</td>
<td>5.653</td>
<td>0.000</td>
</tr>
<tr>
<td>OP→ SCA</td>
<td>0.654</td>
<td>0.322</td>
<td>0.649</td>
<td>5.521</td>
<td>0.000</td>
</tr>
<tr>
<td>GSCMP→ SCA</td>
<td>0.226</td>
<td>0.312</td>
<td>1.098</td>
<td>3.394</td>
<td>0.000</td>
</tr>
<tr>
<td>GSCMP→ OP→SCA</td>
<td>0.587</td>
<td>0.026</td>
<td>0.184</td>
<td>2.943</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Author (2023)

The table presents the path coefficients, confidence intervals, t-values, p-values, and significance levels for the proposed relationships between the latent constructs in the model. The study found a considerable positive link concerning GSCM practices and OP ($\beta=0.893$; $t=5.653$; $p=0.000$), suggesting that a higher level of GSCM practices is related with a higher level of OP. The table indicates a substantial positive association between OP and SCA ($\beta=0.654$; $t=5.521$; $p=0.000$), indicating that a higher level of OP is associated with a higher level of SCA. Furthermore, the table show a significant positive relationship between GSCM practices and SCA ($\beta=0.226$; $t=3.394$; $p=0.000$), suggesting that a higher level of GSCM practices is associated with a higher level of SCA. The study found that there is a significant positive relationship between GSCM practices, OP, and SCA ($\beta=0.584$; $t=2.943$; $p=0.000$), indicating that the connection between GSCM practices and SCA is facilitated by OP.
Figure 2 shows the resultant structural model of the relationships between GSCM practices, OP, and SCA. A comprehensive structural model shows the extent of the relationships between the constructs related to this study as well as the factor loadings for each item in the constructs. GSCM practices had a positive and significant relationship with OP. OP has a positive and significant relationship with SCA. GSCM practices have a positive and substantial connection with SCA. The implementation of GSCM practices, OP, and SCA are all related. In conclusion, the H1, H2, H3, and H4 hypotheses are all supported. Figure 2 displays the fitted model coefficients and factor loadings.

5 DISCUSSION

The results, which are validated by prior research, show that GSCM practices have a positive relationship with OP (Gharakhani, 2012; Mallikarathna & Silva, 2019; Fahimnia et al., 2015; Feng et al., 2018b). Therefore, H1 is accepted at 95 per cent confidence interval (t-value > 1.96). This indicates that the variation in OP was mostly explained by GSCM practices. The results indicate that OP has a significant (p<0.001) and positive impact on SCA. Therefore, H2 is accepted at 95 per cent confidence interval (t-value>1.96). This indicates that the variation in SCA was mostly explained by OP. According to this finding, firms with strong OP will also likely enjoy longer lasting competitive advantage. OP is impacted by GSCM practices which, in turn, generate SCA. The findings show that GSCM practices influence SCA. Therefore, H3 is accepted at 95 per cent confidence interval (t-value > 1.96). This indicates that the variation in SCA was
mostly explained by GSCM practices. The outcomes are consistent with earlier investigations. Implementing green innovation, as highlighted by Chiou et al. (2011), has a positive effect on environmental performance and competitive advantage. Implementing GSCM practices provide companies with benefits related to cost reduction, innovation, and environmental impact (Jia & Wang, 2019). Thus, GSCM practices offer an opportunity for companies to establish a SCA (Cetin & Knouch, 2018). GSCM practices confer a competitive edge on firms through cost savings, enhanced reputation, legitimacy, and sustained growth (Hart & Dowell, 2011; Hart & Milstein, 2003). Tripathi and Joshi (2019) examined how GSCM practices can contribute to a business gaining a competitive edge. They argued that a company can achieve a competitive advantage by transitioning its SCM into GSCM practices, which encompass environmental and social initiatives. This study found that OP facilitates the link relating GSCM practices and SCA. Thus, H4 is accepted at 95 per cent confidence interval (t-value >1.96). The findings show that, through the mediation of OP, GSCM practices had a significant indirect impact on SCA.

6 CONCLUSION

Results demonstrate that GSCM practices contribute to SCA through OP. Results indicate the correlation between GSCM practices, OP, and SCA. This study concludes that GSCM practices positively connect with both OP and SCA. The results demonstrate that OP can be improved by implementing GSCM practices, thus providing a SCA edge for the company. Companies which aim to compete in global markets must implement GSCM practices to gain a lasting competitive edge.

Limited findings are available that focus on the intervening impact of OP. Feng et al. (2018a) investigate the intervening impact of OP on the correlation between GSCM practices and financial performance. Ahmad et al. (2022) examine the effect of GSCM practices on finance performance with mediation of OP. Al-Ghwayeen and Abdallah (2018) investigate the intermediating impacts of OP on the link relating GSCM practices and business performance. Zhu et al. (2010) examine how OP interferes the link involving GSCM practices and financial performance. There is limited literature on GSCM practises, OP, and SCA. The research paper contributed to the narrative on GSCM practises, OP, and SCA. This study developed conceptual framework that provides an intermediating effect of OP linking the correlation of GSCM practices and SCA.
This study offers valuable managerial insights into how GSCM practices can be leveraged by the FMCG industry in Oman to attain a SCA. Companies must recognize the significance of GSCM practices and take proactive measures to implement them. Key components of GSCM practices, such as choosing environmentally responsible manufacturing processes and sourcing sustainable materials are pivotal for companies seeking to enhance their SCA. Companies may improve their SCA by understanding the green practices that are relevant to their supply chain operations. Oman, like many Gulf Cooperation Council (GCC) countries, faces challenges related to water scarcity and limited natural resources. GSCM practices assist companies to conserve resources, reduce waste, and enhance resource efficiency. Adhering to GSCM practices enables Omani companies to remain competitive in the international market. The government may offer incentives and preferential treatment in the procurement process to companies which use GSCM practices.

6.1 LIMITATIONS AND IMPLICATIONS FOR FURTHER RESEARCH

This study was confined only to FMCG industry in Muscat, Oman. Any generalisations of these results to other industries, Oman, or other countries should be made cautiously. Even though Muscat is the largest economic hub in Oman, food supply companies from other areas not considered may have implemented GSCM practices differently from what this study has reported. GSCM practices in this study were limited to green procurement, eco-design, green manufacturing, and green information system. Other dimensions of the GSCM practices should be explored in future studies. In addition, the number of items that represented each green practice was confined to only one. A good practice dictates that a minimum of three items per factor. This is critical to provide a minimum coverage of a theoretical domain. Future research should consider increasing the number of items per each green practice to maximise the reliability of this research paper. The findings may be limited because a cross-sectional survey was used. Thus, a longitudinal study could provide further light on the long-term effects of GSCM practices on OP and SCA. Despite this, a comprehensive investigation into the relationship between GSCM practices, OP and SCA from a developing country perspective was provided in this study. This adds to the body of knowledge in the field of supply chain management.
REFERENCES


ECONOMOU, V., & Chatzikonstantinou, P. (2009). Gaining company’s sustained competitive advantage, is really a necessary precondition for improved organizational performance? The case of TQM.


GAO, S., Lim, M. K., Qiao, R., Shen, C., Li, C., & Xia, L. (2022). Identifying critical failure factors of green supply chain management in China’s SMEs with a hierarchical


SOMSUK, N. (2014). Prioritizing Drivers of Sustainable Competitive Advantages in Green Supply Chain Management Based on Fuzzy AHP. Journal of Medical and Bioengineering, 259–266. https://doi.org/10.12720/JOMB.3.4.259-266


