

SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES

Challenges and opportunities: A focus on The South African manufacturing sector

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Summary

This paper explores challenges and opportunities in sustainable supply chain management in the South African manufacturing sector. The research aims to analyze the current state of sustainable supply chain management in the south African manufacturing sector. Through interviews with production managers, procurement managers and senior managers. This paper analyzes existing sustainable practices, such as sustainable material sourcing by procurement managers. However, there are challenges, such as Complex regulatory sourcing, supplier collaboration and resource scarcity. Recommendations emphasize investing in efficient technology infrastructure and supplier collaboration, this study contributes to the ongoing discussion on sustainable supply chain management in the manufacturing sector in South Africa.

Keywords: Sustainable supply chain management, Innovation, Technology, challenges, opportunities, sustainable sourcing

JEL: Q21

FENNTARTHATÓ ELLÁTÁSI LÁNC MENEDZSMENT GYAKORLATOK: KIHÍVÁSOK ÉS LEHETŐSÉGEK

Fókuszban a dél-afrikai feldolgozóipar

Összefoglalás

Ez a tanulmány a fenntartható ellátási lánc menedzsment kihívásait és lehetőségeit tárja fel a dél-afrikai gyártási szektorban, megvizsgálja a kihívásokat és lehetőségeket. A kutatás célja a fenntartható ellátási lánc menedzsment jelenlegi helyzetének elemzése a dél-afrikai feldolgozóiparban. A termelési vezetőkkel, a beszerzési vezetőkkel és a felsővezetőkkel folytatott interjúkon keresztül. Ez a dokumentum bemutatja a meglévő fenntartható gyakorlatokat, például a beszerzési menedzserek fenntartható anyagbeszerzését. Azonban kihívások, beleértve a komplex szabályozási beszerzést, a kihívást jelentő beszállítói együttműködést és az erőforrások szűkösségét. Az ajánlások a hatékony technológiai infrastruktúrába és a beszállítói együttműködésbe való befektetést hangsúlyozzák, ez a tanulmány hozzájárul a dél-afrikai gyártási szektor fenntartható ellátási lánc-kezeléséről folyó vitához.

Kulcsszavak: Fenntartható ellátási lánc menedzsment, innováció, technológia, kihívások, lehetőségek, fenntartható beszerzés

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Introduction

According to (StatsSA, 2023) Manufacturing production in South Africa rose by 2.3% year-on-year in July of 2023, following a downwardly revised 5.5% jump in the prior month and missing market estimates of a 4.4% surge this marks the fourth consecutive month of growth in industrial activity, albeit at a modest pace, in part due to fading low-base effects production increased mostly for electrical machinery (+14.1%); vehicles, parts and accessories and other transport equipment (+9.5%); wood and wood products, paper, publishing, and printing (+7%) and petroleum, chemical products, rubber, and plastic products (+6.8%).

(BizCommunity, 2023) states that the manufacturing sector in South Africa is one of several sectors of interest listed in the National Development Plan (NDP) as a potential source of job creation and GDP (Gross Domestic Product) growth. Despite various roadblocks that have hampered the industry's progress in recent years (Trendov – Vasa, 2016; Priatmoko et al., 2021; Khan et al., 2022), initiatives by the public and private sectors to revitalize and expand South Africa's manufacturing sustainable supply chain management capabilities offer an appealing potential for the industry.

Sustainable manufacturing is a key element in the industry (Hojcska et al., 202). Considering its apparent aim to move to sustainable manufacturing, South Africa's manufacturing sector is beset with sustainability issues. The slow pace of implementing sustainable measures has led in ineffectiveness and inefficiency at multiple tiers, as well as a slowing of the industrial sector's competitiveness (BizCommunity, 2023). To boost this sector's competitiveness, manufacturers must incorporate sustainable practices into their operations throughout their supply chain networks by improving their competencies and embracing practices that promote sustainability to gain a competitive advantage while also contributing to the environment and economy (Economics, 2023)

Despite the Enactment, of the Conference of Parties (COP 27) held in Egypt in 2022 November, which addresses various issues such as sustainability, as well as the efforts of the South African Government to strengthen the implementation of the agreement in its various economic sectors, environmental sustainability remains a challenge for the South African manufacturing sectors (Young, 2023) ,this highlighted the critical importance of implementing mitigating measures such as sustainable supply chain management (SSCM) techniques.

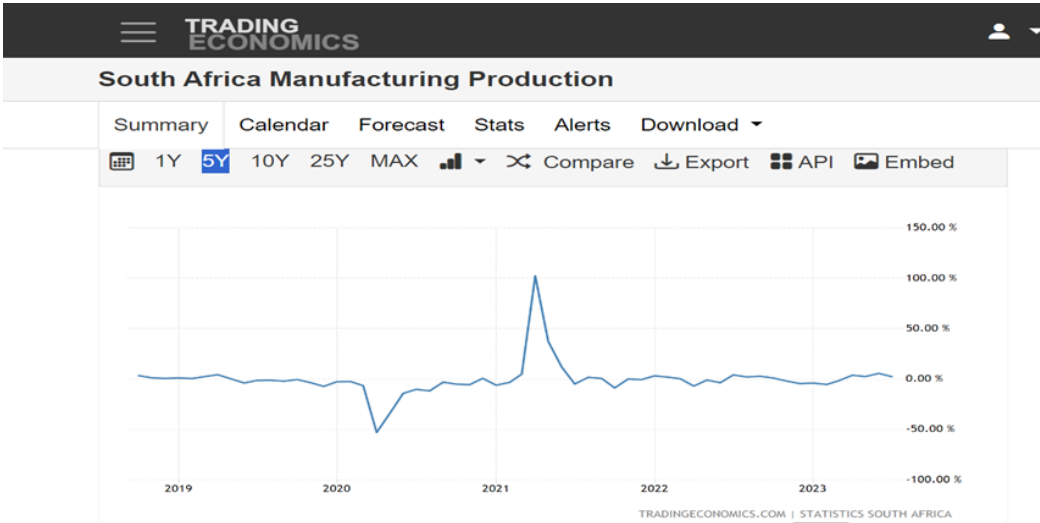


Figure 1. (Economics, 2023)5 year growth/decline forecast on the South African manufacturing industry.

Research Questions

This study embarks on a two-fold exploration, guided by the following research questions:

Question 1- what challenges are encountered in implementing Sustainable supply chain management into your practices?

Question 2- How do you ensure production operations comply with sustainability regulations within the South African manufacturing sector?

Question 3- what significant opportunities do you think are there to improving sustainability within the South African manufacturing sector?

Research Objectives

The objectives of this research are to:

Objective 1- investigating what challenges are encountered in implementing Sustainable supply chain management into practices.

Objective 2- Probing how to ensure production operations comply with sustainability regulations within the South African manufacturing sector.

Objective 3- Exploring significant opportunities that are there to improving sustainability within the South African manufacturing sector.

Methodology and Material

A Qualitative approach was used to explore the dynamics of SSCM adoption in the South African manufacturing industry. This method integrated a thorough literature analysis and interviews performed within the industry.

The interview collected qualitative data from four manufacturing companies, respondents were asked about their existing supplier collaboration, challenges and opportunities in the manufacturing sector, the interviews revealed the prevalence of SSCM procedures in the sector.

Participant Selection

The process of participant selection was purposeful It was designed to encompass a spectrum of: 12 participants consisting of Production managers, Procurement managers and senior managers relevant to the manufacturing sector in South Africa. 4 Production managers were interviewed, 4 procurement managers were interviewed, and 4 senior managers were interviewed. categories of participants who were engaged:

Production managers: Production managers were asked questions relating to what sustainable supply chain practices were implemented within the production processes, what impact have they had on resource efficiency and waste reduction, and what challenges were encountered in sourcing sustainable materials and ensuring their availability for production, the questions asked were necessary to address the challenges and opportunities on the sustainability of Supply chain management.

Procurement managers: Procurement managers were asked if they have faced any regulatory challenges in sourcing sustainably and what are the most significant opportunities for improving sustainability in procurement within the South African manufacturing industry, the questions asked were necessary to bring light to the challenges and opportunities on sustainability of Supply chain management.

Senior managers: Senior managers were asked what main challenges they see in implementing sustainable practices within the supply chain and how they think these challenges can be addressed effectively and what opportunities do you see in sustainable supply chain management within the South African context. These questions were necessary as they brought into the challenges and opportunities on sustainable supply chain management.

Data Collection

The primary data gathering tool employed was online, semi-structured interviews with the chosen participants, online interviews were chosen because they allow for a deeper examination of participants' viewpoints and firsthand knowledge, these interviews were deliberately planned to encourage open dialogue (John W. Creswell . D., 2017). This was accomplished by developing open-ended questions to get exact data from participants, allowing for a more detailed knowledge of their viewpoints.

Ethical Considerations

While conducting this study, it was critical to recognize and uphold ethical values, the Author received informed consent from all participants, assuring that they were fully informed of the study's objectives, procedures, and their right to withdraw their participation without repercussions. The identity and confidentiality of participants were strictly safeguarded using secure data management techniques. Throughout the research procedure, the author remained prudent in addressing any possible biases and respecting the individuality and privacy of the participants, adhering to the strictest ethical standards (John W. Creswell . N., 2016).

Results

Qualitative results were gained from interviews with Production managers, Procurement managers and Senior Managers the answers are from one of the four manufacturing companies:

Questions included reasons for challenges with implementing sustainable supply chain management, how to ensure that production operations comply with sustainability regulations and standards in South Africa, what challenges are encountered in sourcing sustainable materials and ensuring their availability for production, what are the significant opportunities for improving sustainability in procurement within the South African manufacturing industry? And opportunities are in sustainable supply chain management within the South African context? To answer the questions and address the objectives the following questions directed to the production manager, procurement manager and senior manager were necessary.

From Table 1 below Question 1 asks What sustainable supply chain practices have you implemented within your production processes, and what impact have they had on resource efficiency

and waste reduction? From the question asked what the interviewer was attempting to find out is what impact the practices have on resource efficiency and waste reduction the production manager then proceeded to answer that starting to use materials that are better for the environment, have reduced the amount of waste generated during production, ultimately this saves money on materials and disposal costs.

Question 2 addresses the regulatory compliance with sustainable regulations and standards and staying up to date on regulations and compliance within the South African context. Question 3 addresses the challenges encountered in attempting to source sustainable material, often the challenge is finding suppliers who comply with regulatory standards and provide sustainable materials. From Table 2 Question 1 addresses Regulatory challenges in sourcing sustainably, complex regulation landscape is a challenge in staying updated on regulations related to environmental standards and procurement policies.

Question 2 addresses the most significant opportunities for improving sustainability in procurement in the manufacturing industry, opportunities in supplier collaboration working closely with suppliers and reducing environmental impact.

From Table 3 Question 1 the main challenges in implementing sustainable practices, one challenge is resource scarcity like water and energy and complex regulations which can be costly. Question 2 addresses how these challenges can be addressed by investing in efficient technology infrastructure to help save resources and collaborate with industry peers. And question 3 addresses what opportunities there in SSCM are, circular economy models and certification for sustainable products.

Interviewer	Production Manager Answer
What sustainable supply chain practices have you implemented within your production processes, and what impact have they had on resource efficiency and waste reduction?	We've started using materials that are better for the environment, and we've reduced the amount of waste we generate during production. This has helped us save money on materials and disposal costs.
How do you ensure that your production operations comply with sustainability regulations and standards in South Africa, especially considering the evolving regulatory landscape?	We stay updated on the rules and regulations, and we make changes to our processes when needed to make sure we're following the law.
What challenges do you encounter in sourcing sustainable materials and ensuring their availability for production? How do you address these challenges?	Sometimes, it's hard to find suppliers who provide sustainable materials at the quantity we need. We work closely with our suppliers to find solutions and look for local sources when possible.

Figure 2. Authors compilation (Table 1)

Interviewer	Procurement manager (Answer)
Have you faced any regulatory challenges in sourcing sustainably?	Navigating the complex regulatory landscape can be challenging. We stay updated on regulations related to labor practices, environmental standards, and procurement policies to ensure compliance.
In your opinion, what are the most significant opportunities for improving sustainability in procurement within the South African manufacturing industry?	There are opportunities in supplier collaboration. By working closely with our suppliers and sharing sustainability goals, we can collectively find innovative ways to reduce environmental impact and improve social responsibility.

Figure 3. Authors Compilation (Table 2)

Interview	Senior Manager (Answer)
What are the main challenges you see in implementing sustainable practices within your supply chain?	One challenge is resource scarcity, like water and energy. Another is dealing with complex regulations, which can be costly to comply with.
How do you think these challenges can be addressed effectively?	By investing in efficient technologies to save resources, and we can collaborate with industry peers to navigate regulations together.
what opportunities do you see for us in sustainable supply chain management within the South African context?	Renewable energy adoption, circular economy models, and certification for sustainable products are promising opportunities.

Figure 4. Authors compilation (Table 3)

Summary of Production manager perspectives

From the Production managers perspective on what sustainable practices were implemented within the production process the perspective was using materials that are better for the environment and the reduction of amount of waste by monitoring the different types of waste and analyzing the impact of waste on production while attempting to incorporate sustainability practices in the production, further to this the production managers perspective on production operations and sustainability regulations and standards in South Africa, was to be updated on the rules and regulations, make changes to the processes when needed to make sure that the law and regulations are followed. And the challenges encountered in sourcing sustainable materials and ensuring their availability for production and to how to address these challenges, the challenge at times is finding suppliers who provide sustainable materials at the quantity needed by production responding to demand however closely working with suppliers to find solutions and look for local sources when possible.

Summary of Procurement manager perspectives

From the Procurement managers perspective on regulatory challenges in sourcing sustainable Materials the perspective was it was important to navigate the complex regulatory landscape staying updated on regulations related to labor practices, environmental standards, and procurement policies to ensure compliance. Further to this there was a perspective on the most significant opportunities for improving sustainability in procurement within the South African manufacturing industry, the procurement manager was of the view that there are opportunities in supplier collaboration, by working closely with suppliers and sharing sustainability goals, collectively find innovative ways to reduce environmental impact and improve social responsibility.

Summary of Senior manager perspectives

From the Senior managers perspective on the main challenges in implementing sustainable practices within the supply chain the senior manager was of the view that one challenge is resource scarcity, for example water and energy he further explaining that another is dealing with complex regulations, the senior manager delved into how these challenges can be addressed effectively the senior manager explained that they can be addressed effectively by investing in efficient technologies to save resources, and collaboration with industry peers to navigate regulations together and the opportunities the senior manager saw in sustainable supply chain management within the South African context are renewable energy adoption, circular economy models, and certification for sustainable products are promising opportunities.

Conclusion

Sustainable Supply Chain Management is a comprehensive path that includes both difficulties and possibilities in the South African manufacturing industry. Resource scarcity and regulatory complexity are challenges that coexist with potential opportunities for market accessibility, resource efficiency, and innovation to realize the full potential of SSCM processes Ndawo.M (2019). South African manufacturing firms must embrace innovation, develop collaboration, and traverse these difficulties, The study's findings gave useful insights into the state of Sustainable Supply Chain Management adoption in the South African manufacturing industry, underlining the importance of continuing efforts to enhance supply chain sustainability and resilience. As the sector continues to navigate the path to sustainability, it does so with an understanding of its specific challenges and a dedication to a more responsible and sustainable future.

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