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The most prominent environmental criteria for sustainable supplier selection

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***Abstract* — Competitiveness is widely acknowledged as a fundamental determinant of organisational success, as it reflects the essential elements required for effective operations and sustained profitability. This paper addresses the challenge of achieving competitiveness through the selection of sustainable suppliers in business procurement processes. The primary objective of the study was to identify the most prominent environmental competitiveness criteria relevant to sustainable supplier selection (SSS). Furthermore, the paper aims to provide recommendations to guide enterprises in integrating these criteria into procurement strategies. Although the literature emphasises the importance of SSS, limited attention has been given to specifying environmental sustainability criteria and developing quantifiable approaches for their evaluation. To address this gap, a quantitative study was conducted within the South African manufacturing industry. The findings reveal that "Design for Environment" emerged as the most influential environmental criterion for SSS. The study contributes to both theory and practice by offering a structured understanding of environmental competitiveness in supplier evaluation, thereby supporting organisations in developing robust, sustainability-oriented procurement frameworks aligned with long-term economic and environmental objectives.**

***Index Terms* — sustainable, suppliers, selection, manufacturing, environmental**

I. INTRODUCTION

Competitiveness is recognised as a defining characteristic of organisations, as it underpins the core components necessary for an organisation to operate effectively while simultaneously enabling the organisation to achieve substantial profitability (Hia et al., 2023). An essential component of the modern economy is an organisation's competitiveness, which reflects its capacity to adapt to evolving market conditions and sustain a strategic advantage over the long term (Shaulska et al., 2021). Conducting a systematic evaluation of the organisation is therefore crucial for strengthening its competitive position. One such crucial systematic evaluation aims to secure a competitive position in the market through a sustainable supplier selection (SSS) process.

The accelerated consumption of resources, environmental degradation, and raw material scarcity—exacerbated by rapid industrialisation, population growth, and intense competitive pressures—have compelled organisations to embrace more sustainable and eco-friendly practices, particularly in SSS (Koc et al., 2023). However, SSS is a typical multi-criteria decision-making dilemma, and its sustainable counterpart adds complexity by requiring the simultaneous consideration of economic, environmental, and social dimensions (Schramm et al., 2020). In this context, further research is essential to explore SSS approaches that can better equip decision-makers with effective tools and strategies (Schramm et al., 2020).

The problem addressed in this research refers to the challenges of selecting sustainable suppliers for business procurement (Hendiani, Mahmoudi and Liao 2020). Since SSS directly influences the long-term success and profitability of organisations and their projects, incorporating sustainability into the selection process can enhance overall value and drive competitive advantage (Mahmoudi et al., 2021).

Despite widespread recognition of the need to integrate sustainability into supplier selection, organisations face considerable challenges in systematically evaluating and comparing suppliers on sustainability-related dimensions alongside traditional factors such as cost and quality. These challenges are particularly evident in relation to environmental criteria, where it becomes essential to identify the most

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critical elements for consideration (Alastal et al., 2025). Further, when addressing specifically environmental criteria, Liaqait et al. (2022) invite more research on how to determine or measure them. This study aims to fill that void.

In conclusion, the research reported in this paper aims to identify the most prominent competitive, sustainable environmental criteria for supplier selection by organisations. However, only the environmental criteria will be analysed, and the research approach will be discussed.

II. SUSTAINABLE SUPPLIER SELECTION

Purchasing and procurement have long been recognised as critical functions within organisations (Bohner & Minner, 2017). Representing a complex multi-criteria decision-making process, SSS involves suppliers whose actions directly influence the ability to produce environmentally friendly products that minimise ecological harm. Furthermore, they play a pivotal role in the successful implementation of green supply chain management systems (Vaezi et al., 2024). Consequently, ensuring SSS has become essential for organisations striving to procure goods and services responsibly, thereby aligning with broader sustainability objectives and long-term competitiveness (Vaezi et al., 2024).

Broadly, SSS is the process by which organisations identify, evaluate, and choose suppliers to provide goods or services. SSS is fundamentally a multi-criteria decision-making challenge. Its more advanced and intricate variation requires the simultaneous consideration of economic, environmental, and social aspects (Schramm et al., 2020). This multi-dimensional approach enables organisations to identify and select suppliers whose practices and capabilities align closely with their sustainability objectives, thereby ensuring consistency with environmental, social, and economic performance goals (Vaezi et al., 2024).

Over the past three decades, growing awareness of sustainability has significantly influenced how goods and services are produced and delivered to consumers (Schramm et al., 2020). This shift has given rise to the concept of the sustainable supply chain, which has garnered substantial interest from both academia and corporations in the public and private sectors (Büyüközkan & Çifçi, 2012). SSS plays a critical role in sustainable supply chain management, encompassing the oversight of all activities related to the input-transformation-output process (El Mariouli & Abouabdellah, 2019; Schramm et al., 2020).

Through a structured approach to evaluating potential partners based on economic, environmental, and social performance, SSS criteria play a crucial role in identifying sustainable suppliers. By integrating these criteria, organisations can ensure that their suppliers align with sustainable practices, thereby enhancing the resilience and ethical standing of the supply chain.

Alastal et al. (2025) emphasise the need for further research on SSS and the criteria applicable to its effective implementation. They confirm that SSS encompasses environmental, social, and economic outcomes across diverse supply chains, yet highlight the importance of identifying the critical elements within each of these dimensions. From both practical and policy perspectives, the strategic adoption of SSS techniques enables organisations to align supplier selection processes with broader corporate sustainability objectives, thereby fostering long-term competitiveness and responsible procurement practices.

According to Chai and Ngai (2020), SSS involves identifying, screening, evaluating, and negotiating contracts with suppliers. This process requires substantial capital and labour investment, as organisations seek high-quality services and optimal suppliers. Schramm et al. (2020) emphasise that determining whether compensation is intended is essential before engaging in multi-criteria decision-making. Recent advancements in artificial intelligence (Zimmer et al., 2016; Memari et al., 2019) have influenced approaches to SSS, balancing economic, environmental, and social criteria (Schramm et al., 2020). This alignment requires governmental support to balance these dimensions for national sustainability (Hendiani et al., 2020).

The explanation of each of the major supplier selection criteria (economic, environmental, and social) follows:

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A. Economic criteria

In today's highly competitive business environment, organisations are increasingly compelled to improve operational efficiency, embrace technological integration, and consolidate their market positions (UNWTO, 2017). Rashidi et al. (2020) assert that key performance criteria—namely quality, delivery, cost, and flexibility—form the foundation of decision-making processes grounded in economic priorities (Savage et al., 2018). Similarly, Falciola, Jansen, and Rollo (2020) emphasise that product quality and delivery performance are critical determinants of competitiveness. Firms that maintain superior quality standards, ensure prompt delivery, and demonstrate adaptability are more likely to achieve sustainable competitive advantage and profitability (Slack et al., 2017).

The economic dimension underscores the imperative of fostering long-term economic growth and safeguarding the financial resilience of organisations. Supply chain managers must therefore formulate strategies that integrate profitable and sustainable supply chain practices to ensure enduring organisational success (Masudin et al., 2024). In contrast to short-term corporate objectives, economic sustainability prioritises stable and continuous returns over extended periods. Achieving this objective necessitates attention to key determinants such as collaborative partnerships, efficient logistical systems, and consistent profitability. Suppliers play a crucial role in this regard, as their capacity to provide cost-effective and high-quality raw materials directly influences a firm's overall economic performance (Masudin et al., 2024).

B. Social criteria

Social sustainability (SS) has become an essential dimension of supply chain management, extending corporate responsibility beyond the focal firm to include all partners in the value chain (Mani et al., 2014). Suppliers, as critical stakeholders, significantly influence corporate reputation, with unethical practices posing risks to business performance and social legitimacy.

SS integrates human and social considerations into supply chains, focusing on safeguarding health, safety, and overall well-being. This aligns with the broader concept of corporate social responsibility (CSR), which emphasises socially responsible practices at all supply chain levels. Key criteria include work safety and labour health (Rashidi et al., 2020), while SS has also been defined as the equitable distribution of social rights (Hendiani et al., 2020).

Internal factors such as labour practices and external elements like community engagement are equally vital (Brandenburg & Rebs, 2015; Mastrocinque et al., 2022). Protecting the human aspect remains a critical strategic imperative in SSS.

C. Environmental criteria

The "green supplier selection" concept, introduced by Noci (1997) and expanded by later scholars (Haeri & Rezaei, 2019), emphasises sustainable environmental practices. Companies now assess suppliers' environmental policies alongside performance (Govindan et al., 2013). Rashidi et al. (2020) found the "Environmental Management System" (EMS), eco-design, and energy conservation as critical criteria. Hendiani et al. (2020) further define environmental sustainability as preserving resources and minimising environmental disruption, with energy conservation ranking highest in importance.

Asadabadi et al. (2023) argue that for organisations to remain competitive in the market, it is imperative to develop long-term strategies that prioritise environmental sustainability. They emphasise that environmental sustainability should be regarded as the most critical criterion in supplier selection processes. Hence, the research presented in this paper narrows its focus exclusively to environmental criteria in supplier selection. The primary aim is to prioritise the specific environmental criteria items, identifying and ranking them according to their prominence and importance in the context of sustainable supply chain management. The items were derived from Nemtajela (2024), who conducted a study examining, among other aspects, the environmental criteria in SSS within the South African context. However, the relative prioritisation of the items identified from the literature was not established.

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According to Sahoo and Goswami (2024), the environmental dimension of sustainability in supply chains emphasises reducing the ecological footprint of operations. This entails minimising carbon emissions, conserving natural resources, and reducing waste, with the adoption of green and clean technologies viewed as essential for achieving these objectives. While Sahoo and Goswami (2024) provide valuable insights into the environmental dimensions of sustainability, their study does not empirically measure or test the relative importance of these dimensions.

SSS is a critical aspect of supply chain management, emphasising environmental and social performance alongside traditional cost and quality measures (Sahoo & Goswami, 2024). Key variables influencing green supplier choice include environmental performance, such as waste management, carbon reduction, and use of sustainable materials, which directly mitigate supply chain impacts. Compliance with environmental regulations is equally important to ensure legal adherence and uphold standards, often verified through audits (Alkaraz et al., 2022). Resource efficiency, through recycling and waste minimisation, contributes to both cost savings and ecological conservation, making it an essential evaluation criterion. Ethical and social responsibility further strengthens sustainability, requiring suppliers to demonstrate fair labour practices, ethical sourcing, and community engagement, often guided by supplier codes of conduct (Patil et al., 2022). Finally, innovation and collaboration foster shared sustainability goals, with suppliers increasingly valued for co-creating eco-friendly solutions and adopting clean technologies (Kandampully et al., 2023). Collectively, these variables enhance corporate sustainability and competitive advantage.

III. SUSTAINABLE SUPPLIER SELECTION

South Africa has several environmental White Papers and policy documents that are highly relevant to supply chain management and sustainable procurement, namely the (1) White Paper on Environmental Management Policy (1997), (2) White Paper on Conservation and Sustainable Use of South Africa's Biodiversity (2023), and (3) White Paper on Energy Policy of the Republic of South Africa, as well as other sustainability-related policy insights (the dti, 2026). These policy instruments were considered in the development of the supplier selection criteria, particularly with regard to integrating environmental considerations into procurement and supply chain decision-making processes.

Organisations increasingly recognise the pivotal role that sustainable suppliers play in achieving overall business success and strive to establish mutually beneficial partnerships. Developing long-term relationships with such suppliers can generate significant advantages for both parties (Tohidi et al., 2024). However, the process of SSS remains complex, often occurring within contexts characterised by incomplete or uncertain information. Consequently, the evaluation and selection of organisational suppliers require the application of systematic methodologies that produce reliable and practical outcomes, mitigating the uncertainties inherent in expert judgement and decision-making (Tohidi et al., 2024).

Therefore, it is essential to adopt a structured and systematic approach to SSS, ensuring that the process is guided by clearly defined and contextually relevant criteria.

A noteworthy contribution is made by Liaqait et al. (2022), who emphasise that SSS should be approached through quantifiable measures. They propose a comprehensive three-stage framework that provides practical guidance for the systematic implementation of SSS practices.

Step 1: Prospective suppliers are initially evaluated against three overarching sustainability dimensions, namely economic, environmental, and social.

Step 2: Sub-criteria are then identified for each of these dimensions. Such sub-criteria may include, for example, environmental management systems, resource consumption, waste management systems, or innovation capability. The choice of sub-criteria can be tailored according to organisational requirements.

Step 3: The Fuzzy Extended Analytical Hierarchy Process (E-AHP) is subsequently applied to determine the relative weightings of each criterion and sub-criterion. This enables a systematic comparison of suppliers, ensuring that sustainability considerations are quantitatively integrated into the decision-making process.

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This methodological framework allows organisations to move beyond traditional cost-based assessments by embedding sustainability into supplier evaluation in a transparent and measurable manner.

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IV. RESEARCH METHOD

This study examines the most critical environmental criteria for SSS within South Africa's manufacturing sector. The manufacturing sector was chosen as the focus of data collection because of its central role in driving national economic growth. To develop an accurate understanding of the phenomenon, it is essential to complement inductive inquiry with deductive reasoning, thereby addressing the real-world challenges under investigation (Saunders et al., 2019).

A. Research instrument

The study adopted a quantitative research design (Saunders et al., 2019) to develop an understanding of environmental SSS criteria. To strengthen reliability and validity, triangulation was applied by integrating diverse sources of evidence and perspectives (Creswell & Creswell, 2018) through the investigation into the necessary criteria for determining environmental SSS items. The items were derived from literature and a relevant South African study conducted by Nemtajela (2024). The environmental SSS criteria were specifically identified for the South African business context and subsequently validated to ensure their applicability and reliability (Table 2).

A structured questionnaire was developed to capture participants' perceptions of the importance of each environmental criterion (Table 2). The survey employed a five-point Likert scale ranging from "Not important at all" (1) to "Very important" (5). This allowed for statistical analysis and the ranking of criteria according to their relative significance. In total, eight environmental items were assessed, as presented in Table 2. The integration of qualitative exploration and quantitative validation ensured that the findings were both contextually grounded and empirically robust, offering a reliable framework for SSS.

B. Target population

The West Rand district of Gauteng Province is home to more than 200 manufacturers producing a wide range of goods, including plastics, iron and steel, wood, paper products, and food and beverages. For this study, small to medium-sized organisations (SMEs) were purposively selected as the target population. Eligible businesses were required to employ between five and 200 workers, source raw materials and packaging from suppliers, and demonstrate a commitment to economic, environmental, and SS. Defining the target population with precision was essential to ensure statistical accuracy, enabling the construction of a representative sample for valid and reliable analysis.

Data collection was conducted through interactive knowledge-sharing processes, yielding 154 valid responses from SMEs within the West Rand, recognised as a manufacturing hub. Questionnaires were distributed electronically via Google Forms and hand-delivered through traditional methods. Respondents included employees in operational areas such as supply chain, purchasing, and production. Follow-up emails were sent to non-respondents to improve participation, thereby enhancing the robustness of the dataset. Data collection was conducted during March and April 2022, ensuring adequate temporal coverage and allowing respondents sufficient time to participate and provide informed, reliable responses.

A sampling frame, described by Taherdoost (2016) as a practical list from which samples are drawn to ensure population representation, was compiled from Google-sourced manufacturer lists. These provided names, contact details, and addresses of organisations (Neuman, 2014). Access to multiple databases ensured broader industry coverage. Addressing sampling concerns early contributes to a stronger research design and maximises the potential of mixed-method approaches (Lieber, 2009).

A convenience sampling method was employed, selecting participants based on accessibility, location, availability, and willingness to participate. Dörnyei (2007) describes this as a non-probability technique

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prioritising ease of access, while Etikan, Musa and Alkassim (2015) emphasise its focus on representativeness. Often termed "accidental sampling," it involves selecting readily available units. In this study, manufacturers from the West Rand district served as the units of analysis, providing both qualitative and quantitative data through surveys and interviews conducted with the same participants.

C. Response rate

After an initial screening of 165 responses, eleven were discarded due to incomplete data, leaving 154 responses (93% response rate) eligible for hypothesis testing and final analysis (Pallant, 2016). This response rate exceeds the minimum sample size of 74 as determined by G*Power (Adomako and Nguyen 2023), ensuring a robust sample from which population parameters can be estimated with confidence. Even if the population distribution deviates from normality, the sample means are expected to align with a normal distribution due to the Central Limit Theorem (Saunders et al., 2019). The Central Limit Theorem states that, regardless of the population distribution, the sampling distribution of the sample mean will approximate a normal distribution as the sample size becomes sufficiently large.

Responses were analysed individually to capture the specific nuances of various manufacturing sub-sectors. The demographic profile of participants in this study is diverse and spans multiple characteristics related to organisation size, manufacturing type, education, years of experience, age, and job titles (Table 1).

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Participants represent various scales of organisations, with the majority working in small (38%) and medium-scale (46%) organisations, while micro-scale organisations account for 9%, and large-scale organisations make up 7% (Table 1).

Among the respondents, plastic manufacturing is the most common type, representing 33.8% of the sample, followed by other manufacturing types (27.9%), which may include niche or specialised manufacturing categories not specified in the survey (Table 1).

Food and beverages account for 13.6%, iron and steel for 12.3%, wood and paper, and corrugated cardboards, each account for 5.2%. Raw materials manufacturing represents the smallest portion at 1.9%. These figures highlight the variety within the manufacturing sector of SMEs in South Africa, with a notable focus on plastic manufacturing and a range of other types contributing to the overall diversity (Table 1).

Most respondents reported either on-the-job training workshops (35.7%) or post-matric/diploma certificates (31.8%) as their highest level of education. A smaller proportion completed matric/grade 12 (22.7%), while 7.1% held a postgraduate degree, and only 2.6% had less than matric or grade 12 (Table 1).

The majority of participants have significant work experience: 36% have between 6 and 10 years, and 28% have 2 to 5 years of experience. Fewer respondents have extensive experience (11-15 years at 20% and over 16 years at 7%) or are relatively new, with 9% having a year or less in the industry (Table 1).

The largest age group represented is 30-39 years, comprising 44.8% of the sample, followed by those aged 40-49 (25.3%) and 20-29 (14.9%). Smaller percentages fall into the 50-59 age bracket (11%) or are aged 60 and above (2.6%)(Table 1).

Respondents hold varied positions, with the most common roles being middle managers (24%) and supervisors (22.7%). The roles of general worker and operator each account for 11.7% and 14.3%, respectively, while administrator/buyer/receiver roles make up another 14.3%. Other positions account for the remaining 13% (Table 1).

These demographics reflect a diverse range of educational backgrounds, experience levels, age groups, and job roles within SMEs in the South African manufacturing sector.

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Table 1: Demographical information

Description	Frequency	Percentage
Size of organisation		
- Micro scale	14	9%
- Small scale	58	38%
- Medium scale	71	46%
- Large scale	11	7%
Manufacturing type		
- Plastic	52	33,8%
- Iron & Steel	19	12,3%
- Corrugated Cardboards	8	5,2%
- Raw materials	3	1,9%
- Wood and paper	8	5,2%
- Food and beverages	21	13,6%
- Other	43	27,9%
Education		
- Less than matric/grade 12	4	2.6%
- Matric/grade 12	35	22.7%
- On the job training workshops	55	35.7%
- Post matric/Diploma certificate	49	31.8%
- Postgraduate degree	11	7.1%
Years of experience		
- ≤ 1 year	14	9%
- 2 – 5 years	43	28%
- 6 – 10 years	56	36%
- 11 – 15 years	30	20%
- ≥ 16 years	11	7%
Age group		
- ≤ 19 years	2	1.3%
- 20 – 29 years	23	14.9%
- 30 – 39 years	69	44.8%
- 40 – 49 years	39	25.3%
- 50 – 59 years	17	11.0%
- ≥ 60 years	4	2.6%
Job title		
- General worker	18	11.7
- Operator	22	14.3
- Administrator/buyer/receiver	22	14.3
- Supervisor	35	22.7
- Middle manager	37	24.0
- Other	20	13.0

V. FINDINGS

The items for the study derived from a broader research project, though this paper specifically reports on the environmental criteria for supplier selection (Nemtajela, 2024). The results emphasise the relative

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importance of these factors in organisational decision-making. The questionnaire comprised 57 items, of which 42 measured supplier selection criteria across social, economic, and environmental dimensions, while 15 items captured demographic information. Environmental criteria were measured using nine items. Table 2 presents the identified items, arranged according to their ranked significance, providing a structured overview of the findings. The most valued item according to the research is Design for Environment (DfE) (Table 2).

Table 2: Research instrument - environmental criterions (Adapted from Nemtajela, 2024.)

Indicate the level of importance of each criterion within your organisation										
ENVIRONMENTAL CRITERIA **ISO – International Organisation for Standardisation**	**Not important at all**	**Low importance**	**Neutral**	**Important**	**Very important**	**n**	**Mean**	**Median**	**Mode**	**Std. deviation**
1. Design for environment (re-cycle, re-use, re-manufacture) (item 31)	1	2	3	4	5	154	4,08	4,00	4	0,749
2. To compete in global environment (item 29)	1	2	3	4	5	154	3,98	4,00	4	0,796
3. Environmental management systems (ISO certifications) (item 32)	1	2	3	4	5	154	3,98	4,00	4	0,754
4. Managing environmental issues (item 30)	1	2	3	4	5	154	3,88	4,00	4	0,753
5. Green strategies of the supplier company (item 33)	1	2	3	4	5	154	3,84	4,00	4	0,874
6. Use of environmentally friendly material (item 27)	1	2	3	4	5	154	3,82	4,00	4	0,697
7. Carbon and hazardous substance management (item 26)	1	2	3	4	5	154	3,79	4,00	4	0,758
8. Environmental compliance (item 25)	1	2	3	4	5	154	3,72	4,00	4	0,852
9. Geographical location (item 28)	1	2	3	4	5	154	3,68	4,00	4	0,783

Design for environment (Recycle, Re-use, Re-manufacture) (Item 31): This criterion evaluates whether the supplier incorporates eco-design principles into products and processes, focusing on resource efficiency, recyclability, reusability, and remanufacturing to reduce waste and environmental impact throughout the product lifecycle. This item was deemed the most important (Mean 4,08; SD 0,749).

To compete in global environment (Item 29): This assesses the supplier's ability to align with international sustainability standards and practices, enabling them to remain competitive in a global marketplace where environmental responsibility is increasingly a prerequisite for trade and partnerships. This item was deemed the second most important (Mean 3,98; SD 0,796).

Environmental management systems (ISO certifications) (Item 32): This criterion refers to the supplier's implementation of formal environmental management systems, such as ISO 14001, which demonstrate structured approaches to monitoring, reducing, and continually improving environmental performance. This item was deemed the third most important (Mean 3,98; 0,754).

Managing environmental issues (Item 30): This evaluates the supplier's capacity to identify, address, and mitigate environmental challenges—such as waste, emissions, and pollution—within their operations, ensuring proactive environmental stewardship. This item was deemed the fourth most important (Mean 3,88; SD 0,753)

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Green strategies of the supplier company (Item 33): This refers to the supplier's adoption of broad, company-wide environmental strategies, including sustainable sourcing, energy efficiency initiatives, and long-term commitments to reducing ecological footprints. This item was deemed the fifth most important (Mean 3,84; 0,874).

Use of environmentally friendly material (Item 27): This criterion assesses the supplier's choice of raw materials, favouring those that are renewable, biodegradable, or have a lower environmental impact compared to conventional alternatives. This item was deemed the sixth most important (Mean 3,82; 0,697).

Carbon and hazardous substance management (Item 26): This measures how effectively suppliers monitor, control, and reduce greenhouse gas emissions and manage hazardous substances in line with regulatory and sustainability requirements. This item was deemed the seventh most important (Mean 3,79; 0,758).

Environmental compliance (Item 25): This criterion refers to adherence to environmental laws, regulations, and standards at local, national, and international levels, ensuring legal conformity and risk mitigation. This criterion was deemed the eighth most important (Mean 3,72; 0,852).

Geographical location (Item 28): This evaluates the environmental implications of a supplier's location, such as transportation distances, carbon footprint of logistics, and potential exposure to region-specific environmental regulations or risks. This criterion was deemed the ninth most important (Mean 3,68; 0,783).

VI. DISCUSSION AND RECOMMENDATIONS

Traditionally, supplier selection was guided primarily by considerations of price, flexibility, and quality. In contemporary supply chains, however, sustainability has emerged as a pivotal determinant, shaped by mounting environmental and social pressures. Consequently, procurement processes have become more complex, necessitating the systematic integration of sustainability into organisational decision-making. To strengthen sustainability performance, greater emphasis is now placed on supplier selection, monitoring, and auditing, rather than solely on integration and development. This development reflects a growing recognition that rigorous governance of supplier practices is indispensable for achieving long-term sustainable supply chain performance (Mani et al., 2014).

In parallel, intensifying regulatory demands, rising consumer awareness, and reinforced corporate sustainability commitments have made the prioritisation of sustainable suppliers imperative. Organisations increasingly view such prioritisation as critical for mitigating environmental impact and enhancing long-term resilience. Recent scholarship underscores the strategic significance of SSS, demonstrating that robust evaluation processes not only facilitate regulatory compliance but also reinforce stakeholder relationships and strengthen corporate reputation (Alastal et al., 2025). The findings above reveal that the most prominent environmental element of SSS is Design for the environment (mean 4,08; SD 0,749). This item relates to re-cycle, re-use, re-manufacture.

From a theoretical perspective, the research offers valuable insights into the environmental dimensions of SSS. The study identified Design for the Environment (DfE) as the most prominent criterion in SSS. DfE encompasses the principles of recycling, reusing, and remanufacturing, and assesses the extent to which suppliers integrate eco-design considerations into their products and processes. This approach emphasises resource efficiency, material recovery, and the minimisation of waste and environmental harm across the entire product lifecycle. Organisations are therefore encouraged to prioritise suppliers that adopt a systematic and strategic commitment to DfE, as such practices not only promote long-term sustainability but also enhance the organisation's environmental reputation and competitive advantage. Therefore, the study highlights the most prominent environmental criterion, thereby advancing understanding of how such factors contribute to effective supplier evaluation within sustainability-oriented supply chain management frameworks.

From a managerial perspective, it is advisable to adopt a structured measurement framework to evaluate the impact of SSS. Liaqait et al. (2022) propose a three-stage approach that offers practical and systematic guidance for implementation. In the first stage, potential suppliers are assessed against broad sustainability

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dimensions. The second stage requires the specification of sub-criteria within these dimensions, tailored to organisational needs. Finally, the Fuzzy Extended Analytical Hierarchy Process (E-AHP) is applied to assign relative weights to each criterion. The model presented by Liaqait et al. (2022) thus provides valuable direction for practice.

The study underscores the significance of environmental SSS and contributes meaningfully to the practical understanding of the most prominent environmental criterion. Nevertheless, opportunities for further research remain. Future studies could expand the scope by incorporating additional dimensions of SSSnamely, the economic and social criteria—which were beyond the focus of the present investigation. Moreover, replicating this study across diverse contexts, including both developing and developed countries, is recommended to explore potential similarities and variations in the prioritisation of sustainability criteria across different economic and industrial environments.

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Ključni okoljski kriteriji pri trajnostnem izboru dobaviteljev

Izvleček – Konkurenčnost je v strokovni literaturi splošno prepoznana kot eden izmed ključnih dejavnikov organizacijske uspešnosti, saj odraža temeljne elemente, potrebne za učinkovito delovanje organizacije in zagotavljanje dolgoročne dobičkonosnosti. Prispevek obravnava problematiko doseganja konkurenčnosti prek trajnostnega izbora dobaviteljev v okviru poslovnih nabavnih procesov. Osrednji namen raziskave je bil identificirati najpomembnejše okoljske kriterije konkurenčnosti, relevantne za trajnostni izbor dobaviteljev. Poleg tega članek podaja priporočila za učinkovito vključevanje teh kriterijev v nabavne strategije podjetij.

Čeprav obstoječa literatura poudarja pomen trajnostnega izbora dobaviteljev, je bilo doslej razmeroma malo pozornosti namenjene natančni opredelitvi okoljskih trajnostnih kriterijev ter razvoju merljivih pristopov za njihovo vrednotenje. Z namenom zapolnitve navedene raziskovalne vrzeli je bila v južnoafriški predelovalni industriji izvedena kvantitativna raziskava. Rezultati raziskave kažejo, da se je kriterij »načrtovanje za okolje« (Design for Environment) izkazal kot najvplivnejši okoljski kriterij pri trajnostnem izboru dobaviteljev.

Raziskava pomembno prispeva tako k razvoju teorije kot tudi k poslovni praksi, saj ponuja strukturirano razumevanje okoljske konkurenčnosti v procesu vrednotenja dobaviteljev. Hkrati organizacijam omogoča vzpostavitev robustnih, trajnostno usmerjenih nabavnih okvirov, usklajenih z dolgoročnimi ekonomskimi in okoljskimi cilji.

Ključne besede – trajnostno, dobavitelji, proizvodnja, okoljsko