

Value chain management practices and value creation in sub-Saharan African apparel firms

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Purpose: This study explores value chain management (VCM) practices in the sub-Saharan African apparel industry, developing a strategic framework to enhance value creation.

Design/methodology/approach: A quantitative research design was adopted, surveying 430 managers across the apparel value chain. Data were analysed using factor, correlation, and regression analyses to ascertain the impact of VCM practices on value creation. However, it is essential to notice that the study's findings are limited to the sub-Saharan African context and may not directly apply to other regions.

Findings/results: The analysis revealed a strong correlation between specific VCM practices, such as information sharing, incentive realignment, agile manufacturing, and value creation. These practices help firms to navigate the industry's complexities and leverage regional opportunities.

Practical implications: The study provides a valuable framework for managers, highlighting customer-centricity and strategic sourcing strategies. These strategies are crucial for enhancing operational efficiency and competitive positioning in the global market.

Originality/value: The study offers original insights by empirically validating VCM practices and their contribution to value creation within the sub-Saharan apparel sector. The strategic framework fills a gap in the literature and aids the sector's integration into the global value chain.

Keywords: value chain management; value creation; sub-Saharan Africa; apparel industry; empirical evidence; strategic framework.

Introduction

Today, businesses face various challenges such as volatility, uncertainty, complexity and ambiguity (VUCA). To succeed in such an environment, organisations must enhance their value chain management (VCM) and improve efficiency to maximise value creation and operational performance. The VCM framework provides a comprehensive approach to optimise the various activities involved in delivering products to end users, creating value for customers and providing a competitive advantage (Tyapukhin, 2023). However, recent studies suggest that to achieve competitiveness, companies need to utilise granular, operational VCM practices that fine-tune each link in the value chain, considering the product's lifecycle and responding to market demands (Hintze, 2015). By integrating high-level VCM strategies with ground-level practices, organisations can navigate the VUCA business environment, attain operational excellence and deliver superior customer value. This is particularly true for the sub-Saharan African apparel sector, which faces unpredictable economic conditions, fluctuating consumer preferences and volatile supply chains. Although the apparel industry in sub-Saharan Africa (SSA) has been the subject of extensive research, a greater understanding of this region's most compelling VCM practices is required.

A thorough examination of the literature concerning the apparel industry in SSA reveals a landscape characterised by labour-intensive processes and outdated technology, highlighting the pressing need for capacity building. Morris et al. (2021) argued that this entails enhancing skills, knowledge and resources to meet the evolving requirements of contemporary value chains. Pasquali et al. (2021) also emphasised the complex nature of the apparel sector in SSA, distinguishing between producer-driven and buyer-driven value chains, further complicating the industry's challenges and calling for capacity-building efforts and policy changes to promote sustainable growth. Boys et al. (2020) acknowledged that a strategic shift in policymaking, focusing on nurturing regional and national value chains in the Global South, is crucial for the industry's

structural transformation. This involves transitioning from low- to high-value activities in the production process, such as product innovation and functional specialisation, shifting from basic garment manufacturing to producing high-end fashion items or developing sustainable textile materials in the apparel industry. According to Fernandez-Stark et al. (2022), this economic upgrading presents significant opportunities for growth and innovation, requiring government interventions such as trade policies to protect domestic manufacturers, financial incentives for technology adoption or establishing industry standards to ensure product quality.

These insights highlight the need to enhance technology and workforce skills, policy frameworks and strategic initiatives in response to global and local fluctuations that impact the industry. However, despite the valuable research and information available, there is a need for a comprehensive framework for VCM that aligns with the distinct socioeconomic characteristics, supply chain variations and substantial informal apparel sectors in SSA. This underscores the need for a holistic VCM framework that can provide a roadmap for industrial development, identify critical areas for improvement, streamline production processes and enhance the sector's competitiveness. Specifically, there is a pronounced void in the literature that offers comprehensive, tailored VCM practices designed to navigate the region's unique challenges and catalyse significant value creation within its apparel industry. This deficiency signifies a compelling frontier in academic enquiry, warranting the development of an integrated, evidence-based VCM framework that can drive the apparel industry in SSA towards sustainable growth and innovation. The primary goal of this research is to create a comprehensive framework that identifies and evaluates the essential practices of VCM in the fast-paced environment of the apparel industry in SSA.

This study makes several contributions to the literature. Firstly, it constructs an all-inclusive framework that outlines and categorises VCM practices specific to SSA's apparel sector. Secondly, it assesses the impact of these practices on creating value for businesses operating in the apparel industry in SSA. Lastly, given rapid technological advancements, shifting market dynamics and increasing global competition, understanding the complex network of VCM practices is crucial (see, for instance, Pasquali et al., 2021). This study provides evidence-based recommendations tailored to the needs and realities of the region and aims to inform the strategic decision-making of practitioners and policymakers. The findings of this study are anticipated to fill the existing gaps and advance the discourse on effective VCM in the African apparel sector through rigorous empirical research.

Background

Value chains exhibit unprecedented dynamics, presenting opportunities and challenges for firms in the apparel sector of SSA. Despite the region's increasing participation in these

value chains, there is still no consensus on how small and medium-sized enterprises (SMEs) in the apparel industry in SSA can improve their value creation, given the increasing global competitive forces.

Theoretical framework

The VCM framework was introduced to optimise the value of a company's resources and streamline processes to reduce unnecessary costs (Ajayi & Laseinde, 2021; Erhun et al., 2021; Holweg & Helo, 2014; Porter, 2001). In this study, the resource-based view (RBV) (Barney, 2001; Penrose, 2009) and transaction cost analysis (TCA) (Gemmill-Herren et al., 2021; Williamson, 2008) are essential frameworks for effective VCM, offering valuable insights into how companies acquire and optimise their resources and streamline processes to reduce unnecessary costs. When applied to apparel firms in SSA, these theories emphasise the importance of internal competencies and external interactions in fostering robust VCM. Resource-based view theory posits that a company's sustainable competitive advantage lies in its internal resources and capabilities, which must be rare, valuable, inimitable and non-substitutable (Adetoyinbo et al., 2023; Barney, 2001). Hence, the RBV provides insights into the VCM practices that firms can use to acquire and optimise core resources and capabilities to drive value chain activities for long-term success. This study uses the RBV lens to examine the strategic choices of apparel firms in SSA regarding resource investments, capability development and innovation.

Transaction cost analysis offers a complementary perspective by focusing on the specific VCM practices that firms employ to ensure the efficiency of transactions within apparel firms' value chains. The TCA considers the operational and contractual costs that arise from the economic exchanges and governance structures required to produce and deliver goods and services, such as searching for information, negotiating and enforcing contracts, communicating and safeguarding against uncertainty and opportunism (Ikuabe et al., 2020; Li & Fang, 2022; Schmidt & Wagner, 2019; Williamson, 2008). The TCA is undoubtedly a robust framework for understanding how businesses establish trust-based relationships with suppliers to reduce the need for extensive contracting or adopt standardised processes to streamline transactions, curtail information asymmetry and opportunism costs and improve value creation.

The RBV and TCA provide a comprehensive view that encapsulates the strategic management of firm-specific resources and capabilities and optimises transactional costs and efficiency. By examining the interplay between these two theories, it is possible to understand how apparel firms in SSA manage their value chains and create sustainable competitive advantages while ensuring operational efficiency in a dynamic and often resource-constrained environment.

Value chain management practices

Value chain management practices are essential for achieving sustainable competitive advantage by integrating activities and relationships within the value chain. According to Porter (2001), a value chain is the process of breaking down a company into strategically important activities to understand cost behaviour and sources of differentiation. In contrast to the supply chain, a value chain model describes how companies acquire raw materials as inputs, add value to those inputs through various processes and sell finished goods and services to customers (Helmold & Terry, 2021). Value chain management practices involve a range of activities and strategies that organisations employ to maximise value creation and capture for customers. These practices affect the coordination of all parts of the value chain, from product design and production to the delivery of the final product to the consumer, thus ensuring efficiency and effectiveness throughout the process (Cennamo & Santaló, 2019; Scott & Schmidt, 2013). Several studies have investigated the impact of these practices on business operations, highlighting their significance in various contexts, including SSA. A literature study revealed the following themes describing the VCM practices used by firms operating in value chains to create value for themselves and other stakeholders.

Transparent information sharing

Multiple studies have shown the importance of information sharing in various sectors, such as new product performance (Xie, 2021), sharing economy platforms (Sun & Ertz, 2024), banking (Žabkar & Arslanagić-Kalajdžić, 2013) and governance mechanisms (Luu et al., 2018; Sun & Ertz, 2024). Effective information sharing is believed to create sustainable value by aligning operations and improving demand forecasting and inventory management, leading to optimised resource utilisation (Schilling & Seuring, 2022; Diem Le et al., 2023) and partners sharing information can reduce value chain uncertainty and improve resource utilisation. Furthermore, Lotfi et al. (2021) discovered that information-sharing can reduce supply chain vulnerability. In healthcare, knowledge sharing and information communication technologies have been shown to enhance the quality of services (Colnar et al., 2022), indicating that information sharing is beneficial across different governance structures and industries. Sub-Saharan African research has produced mixed findings on the impact of information-sharing on value creation. For example, Durand and Milberg (2020) found that formal regional supply chains benefit from advanced information-sharing techniques, but firms struggle to integrate into regional and global trading systems. Obonyo et al. (2023) revealed that information sharing in perishable agri-food supply chains is still early because value chain stakeholders withhold price information. Shuaibu and Nchake (2021) found that regional organisations often face information asymmetry and inadequate infrastructure challenges, emphasising the need for tailored information-sharing approaches that address these constraints.

Incentives re-alignment

The alignment of incentives in value chains is crucial for value creation. According to Shekhar and Das (2023), aligning incentives across different stages of the value chain directs the interests of all stakeholders towards common objectives. This synergistic alignment of behaviours and performance is essential for enhancing a firm's value chain, ultimately resulting in substantial value creation. Jagani et al. (2024) further emphasise that incentive realignment is necessary for value creation, as it promotes enhanced collaboration, better coordination, reduced inefficiencies and smoother operations throughout the value chain. Feldman and Sakharov (2022) also highlight the role of incentive mechanisms in driving collaboration, quality improvement and cost reduction, which are essential metrics for firm value creation. Zipfel et al. (2020) established that aligning incentives among supply chain partners improved information sharing, coordination and overall performance. Overall, incentive realignment in value chains can lead to a more cohesive, efficient, and customer-focused ecosystem, thereby driving increased value creation for all stakeholders. However, research in SSA, such as that of Manda et al. (2020), suggests that effective realignment of incentive structures under local contexts and cultural norms is necessary to address pervasive power imbalances and limited resources in SSA value chains.

Customer service management

The literature indicates that customer service management (CSM) is vital to a company's strategy of maintaining and enhancing customer relationships. The CSM focuses on providing customer support and services and ensuring that their needs and issues are promptly and satisfactorily addressed, as Baehaqi et al. (2023) highlighted. Effective CSM involves developing strategies to deliver exceptional services and meet customer needs throughout the value chain. This consists of aligning products, services and processes with customer expectations, which enables organisations to create values that resonate with their target audience. Studies by Cohen and Kouvelis (2021) and Das and Hassan (2022) also highlight the significance of CSM practices such as personalisation and customisation, promptly addressing complaints, providing solutions and compensating for any inconvenience in turning a negative experience into a positive one. These practices increase customer satisfaction, loyalty, business performance and value creation, as Ayodeji et al. (2023) found. Rane et al. (2023) concluded that seamless experience across touchpoints enhances trust and loyalty, ultimately benefiting the firm. Although there are no current statistics on the impact of poor customer service on businesses operating in SSA, it is safe to say that poor customer service can seriously impact a company's bottom line. It is also essential to recognise that, in SSA, consumer preferences and market dynamics vary significantly across countries and regions, necessitating adapting CSM practices to local conditions for success.

Risk management decision-making

Effective risk management is crucial to prevent disruptions and ensure the continuity of operations within a value

chain. Studies conducted by Mouzas and Bauer (2022) indicate that companies operating within value chains are vulnerable to various risks, including financial crises, terrorism, extreme weather events and pandemics. These researchers suggest that practices such as just-in-time production, reliance on single suppliers and utilising customised inputs with few alternatives can exacerbate the impact of external shocks. In such situations, Cohen and Kouvelis (2021) emphasise the importance of proactive risk identification, assessment and mitigation strategies. Yang et al. (2023) found that enhancing risk management capabilities through transparency, building redundancy in supplier and transportation networks, holding more inventory, reducing product complexity, creating flexibility in production across sites and strengthening financial and operational capacities could increase a firm's resilience and enable sustained value creation. Ali et al. (2023) found that businesses in SSA may face unique risks related to political instability, infrastructure challenges and environmental factors, suggesting the necessity of integrating risk management into decision-making processes to ensure resilience and sustainability.

Strategic partnerships

Strategic partnerships are crucial for companies to achieve a competitive advantage and create value. Such collaboration enables firms to access necessary resources and capabilities, enhance innovation and improve their digital transformation initiatives (Saleh & Almarri, 2024; Y. Yang et al., 2022). According to Rahman et al. (2022), the outcomes of strategic partnerships, such as trust and mutual understanding, can reduce transaction costs and improve competitive advantages. Furthermore, Casciani et al. (2022) found that strategic partnerships within the fast fashion industry can lead to better adaptability to market fluctuations and optimal inventory levels. Empirical evidence from Liu et al. (2020) suggests that strategic partnerships are efficient catalysts and innovation facilitators through tacit knowledge exchanges. Kilima and Kurwijila (2020) highlighted that fostering strategic partnerships in SSA requires navigating complex regulatory environments and building trust-based relationships with local partners. This suggests the need for well-established strategic partnerships, whether vertical with suppliers and distributors or horizontal with industry peers, for SMEs in the value chain to innovate, harmonise processes and access new markets.

Material flow analysis

Conscientious optimisation of material flows is a cornerstone of sustainable VCM. Material flow analysis (MFA) is a systematic assessment tool that quantifies the flows and stocks of materials within a system and is instrumental in identifying opportunities for value creation through resource efficiency and waste reduction (Graedel 2019). The MFA can reveal inefficiencies in material use and highlight areas where recycling and recovery can be improved, thus contributing to economic value by reducing costs and enhancing supply chain resilience

(Fet & Deshpande, 2023). Empirical studies such as Laner and Rechberger (2016) present a compelling case for comprehensive material flow analysis that integrates environmental considerations into the core of resource management strategies. Beyond mere efficiency, Ivanov et al. (2021) extend this discourse by examining the resilience of supply chains and highlighting the interdependencies between material optimisation and the robustness of economic systems. Cullen and Cooper (2022) found that implementing MFA practices mitigated waste, improved efficiency and positively contributed to the value created by firms in the value chain. These findings suggest that MFA could be significant in SSA apparel value chains, where efficient and sustainable practices in material flow are beneficial and critical for the region's long-term economic and ecological viability.

Collaborative decision making and execution

Collaborative decision-making and execution are essential components of value creation in organisations and supply chains, as suggested in the literature. According to Ramanathan and Gunasekaran (2014), collaborative planning, forecasting and replenishment can enhance supply chain performance and lead to future partnerships and investment decisions. However, Sudusinghe and Seuring's (2022) empirical study emphasises that trust, transparent communication and aligning shared goals are crucial for successful collaboration. These relational factors are essential for harmonising the interests of diverse stakeholders in the value chain, as highlighted by Ramanathan and Gunasekaran (2014). In SSA, Akenroye et al. (2022) demonstrated the importance of a collaborative approach because of the dominance of informal networks and community-based organisations that significantly influence the region's value chain dynamics. Scholars recommend that firms build robust collaborative frameworks in this environment, emphasising nurturing solid interpersonal relationships and navigating power asymmetries. These empirical insights underscore the critical role of collaborative decision-making and execution for apparel firms in SSA. In this context, these strategies are not merely optional but could be imperative for ensuring inclusivity and driving collective progress within the value chain.

External and internal lean practices

Extant literature (for example, Chen et al., 2019) emphasises the need to integrate lean practices within the value chain because such actions embody a firm's commitment to waste elimination, efficiency enhancement and quality improvement. Barker et al. (2022) elucidated the broad applicability of lean principles to both internal and external logistics, suggesting that their adoption can lead to significant performance gains.

Netland and Powell (2017) provided empirical evidence on the universality of lean methods, showcasing their positive impacts across diverse business contexts. However, despite the reported challenges in SSA, such as inadequate infrastructure, skill gaps in the workforce and distinct cultural characteristics presenting unique obstacles, Manda

et al. (2023) found that adopting lean practices is indispensable. These studies collectively illustrate that while lean principles are universally beneficial, their successful implementation in SSA depends on a nuanced approach that respects and incorporates the region's specific socio-economic and cultural realities.

Postponement practices

Postponement practices in VCM prioritise delaying the customisation or final assembly of products until concrete customer demand crystallises, a strategy aimed at inventory reduction and lead-time optimisation. The significance of such practices was brought to the fore by Saghiri and Hill (2014), who observed that postponement enhanced firms' flexibility and responsiveness to customer demands. Jafari et al. (2022) further highlighted the role of postponement in achieving cost efficiency across supply chains by aligning production closer to demand, thereby reducing waste and handling costs. Ferreira et al. (2021) contribute to this narrative by revealing how postponement practices can be leveraged to match supply with volatile customer demands better. In the context of SSA, a study by Khoza et al. (2022) on the steel industry in South Africa revealed the adoption of four lean practices, namely Just in Time, Total Quality Management, Strategic Partnerships and Waste Elimination, thus predicting the establishment of a lean culture. Given that market fluctuations and unpredictable demand patterns characterise the apparel industry in SSA, the strategic adoption of postponement practices stands out as a potent tool for mitigating risks and enhancing supply chain agility.

Strategic procurement

Strategic procurement is an approach for sourcing goods and services that ensures alignment with an organisation's broader goals, thereby adding significant value to the value chain. The findings of Shekarian et al. (2022) emphasise the critical nature of strategic supplier selection, advocating the careful evaluation of partners who can contribute to the firm's objectives. Ramanathan and Gunasekaran (2014) highlighted the imperatives of managing supplier relationships and mitigating potential risks in procurement, pointing to the role of these practices in achieving operational excellence. Çankaya (2020) explored procurement practices to bolster supply chain resilience and found them potent pre-emptive risk assessment and management tools. In SSA, political instability, corruption and lack of supplier options can pose formidable challenges to standard procurement operations. Implementing strategic procurement methods is poised to fortify supply chain resilience and increase regional competitiveness. Organisations that learn to navigate these complexities via strategic procurement will likely be better equipped to manage supply chain disruptions and maintain continuity in the face of regional uncertainties.

Agile manufacturing

Agile manufacturing is centred on flexibility, responsiveness and swift adaptation to ever-shifting market demand (Gunasekaran et al., 2019). Saikouk et al. (2021) delineated

how agile practices can substantially expedite product development and customisation, allowing businesses to adapt and introduce new products to the market swiftly. Nabass and Abdallah (2019) further demonstrated the pivotal role of agile manufacturing in enabling quicker production ramp-ups, thus responding to customer needs. Ding et al. (2023) also showed that overall manufacturing agility provides rapid adjustments in operational processes to align with current market trends and consumer demands. Within the dynamic landscape of SSA, characterised by quick shifts in market dynamics and evolving consumer preferences, the adoption of agile manufacturing principles becomes especially critical (Fofana et al., 2023). Such principles equip businesses with the capacity to remain competitive and readily seize the nascent opportunities that arise from the fast-paced market environment of the region.

Production smoothing

Production smoothing, a technique that aligns production capacity with demand variability, is crucial for minimising output and resource utilisation fluctuations. Siawsolit and Gaukler (2021) highlighted the importance of meticulous production planning and inventory management to maintain a steady flow of manufacturing processes. Rewers and Diakun (2021) found that smooth production results in cost savings and overall operational efficiency. Bhorat et al.'s (2019) study suggests that the distinctive seasonal demand curves and prevalent infrastructure challenges result in the marginal application of production smoothing practices in sub-Saharan manufacturing value chains. However, it remains evident that such marginal application of production-smoothing practices can bolster efficiency, optimise resource utilisation and ultimately reduce operational costs within the region's unique industrial ecosystem.

Demand forecasting and planning: Demand forecasting and planning are critical components of supply chain management, which focuses on predicting future consumer behaviour to align production and inventory levels (Feizabadi, 2022). This involves using historical data and other external and internal drivers to predict the future demand for a product or service. An accurate forecast allows companies to plan production, inventory and logistics more effectively and to reduce stockouts and excess production (Nenni et al., 2013). Rožanec et al. (2021) found that precise forecasts optimise inventory management and reduce unnecessary stock levels. Tadayonrad and Ndiaye (2023) established that forecasting demand and planning work together to help companies reduce costs, improve customer service and optimise inventory levels. This finding is supported by Singhry and Abd Rahman (2019), who found a positive correlation between demand forecasting, planning techniques and product lifecycle management costs. Ren et al. (2020) emphasised that demand forecasting and planning practices are essential for supply chain agility and market adaptability, enabling businesses to meet market demands, reduce costs and improve customer satisfaction.

In SSA, where access to reliable market data and advanced forecasting tools may be limited, incorporating local insights and fostering collaborative relationships with customers and suppliers can enhance demand forecast accuracy and robustness. Tailoring forecasting and planning to leverage local expertise can help businesses in SSA to remain responsive to actual customer needs, allowing them to streamline their operations to the unique challenges and opportunities of the region.

Mass customisation: Mass customisation has been proposed as a way to enhance value creation by offering personalised products while maintaining costs similar to those of mass-produced goods (Dey, 2010). By adopting this approach, companies can achieve economies of scale by providing diverse products or services that cater to individual customer preferences while benefiting from the cost advantages of mass production. Studies such as those by Jafari et al. (2022) and Liu et al. (2020) have shown that mass customisation can lead to products that better meet individual needs and enhance customer satisfaction. However, Peter et al. (2023) found that a lack of investment in technological innovation hinders the implementation of mass customisation in SMEs in SSA. Despite this, much empirical research suggests that SMEs in SSA can benefit from using mass customisation practices to cater to the specific needs of various niches, ultimately gaining a competitive edge and increasing their market share in the diverse landscapes of the sub-Saharan African markets.

Managing value chains is crucial for businesses to operate efficiently. However, there is a need to understand how VCM practices can be adapted to the unique contexts of emerging markets such as SSA. Conducting an in-depth study of the impact of local factors, including infrastructure, workforce development and socio-political dynamics, on the implementation and success of VCM practices in these markets. By examining VCM practices, such as partnerships, lean practices, postponement, procurement, agile manufacturing, production smoothing, demand forecasting and mass customisation, in the light of local constraints and opportunities, businesses in SSA can enhance their efficiency, responsiveness to market changes, risk management and foster innovation. Although several studies have explored these practices in different sectors and geographic regions, they have yet to specifically examine their operational implications for the apparel industry in SSA.

Value creation metrics

Successful businesses aim to provide value to customers, making it easier to sell products and services. Traditionally, a company is considered to create value when its revenue exceeds the capital invested (Brieger & De Clercq, 2019). However, recent literature emphasises the importance of intangible assets such as brands, ideas, people and innovation, in addition to traditional financial metrics (Tawse & Tabesh, 2023). A balanced scorecard that considers intangibles should

be used to evaluate a firm's value creation. Ayodeji et al. (2023) argued that value creation occurs when a company excels in one value discipline, such as customer intimacy, product leadership or operational excellence while remaining competitive in the other two. This study uses operational excellence as a proxy for value creation.

Research design and methods

This study examines VCM practices in the apparel industry in SSA and their impact on firm's performance. To achieve this, a descriptive research design was used to answer the research questions comprehensively. The target population for the study comprised all general managers in the apparel value chain who possessed extensive knowledge of their respective organisations and the broader industry.

However, the industry's precise number of small- and medium-sized enterprises was initially unknown because of varying registration and reporting standards. To address this, the population was estimated by analysing industry reports, engaging regional trade bodies and examining data from authoritative economic sources. This methodological approach yields a conservative estimate for approximately 2250 SMEs in the target population. Recognising the diverse nature of SSA, a stratified sampling approach was employed to draw a representative sample of the various countries included in the study based on differences in economic development and apparel industry concentration.

To ensure a diverse and representative sample, the region was divided into ten distinct strata, each stratum represented by one of the selected countries. Random sampling techniques were used to select participants, minimise bias and ensure that the selected general managers were representative of their respective strata. A unique identifier was assigned to each general manager, and a random number generator was used to specify a predetermined number of participants from each stratum, resulting in a diverse sample from different geographic locations and economic contexts within SSA. The sample size of 430 respondents surpassed the estimated threshold of 300 (Comrey & Lee, 2013), providing a 95% confidence level with a 5% margin of error, ensuring the robustness of the research findings. Table 1 presents the distribution of general managers in the clothing industry value chain.

Data collection

Data were gathered using a structured questionnaire distributed electronically to general managers. A structured questionnaire was developed based on a preliminary review of the theoretical and empirical literature, allowing for the comparability of responses and increasing the reliability of the study. The questionnaire was pre-tested with 50 randomly selected general managers from the apparel industry who were later excluded from the main study. Feedback was used to revise the questions, resulting in a final questionnaire of 60 questions on a 7-point scale, with 1 = least applicable and 7 = most applicable.

TABLE 1: Distribution of respondents by country.

Country	Number of respondents	%
Botswana	43	10.0
Eswatini	27	6.3
Malawi	32	7.4
Mauritius	56	13.0
Mozambique	31	7.2
Namibia	34	7.9
South Africa	69	16.1
Tanzania	44	10.2
Zambia	54	12.6
Zimbabwe	40	9.3
Total	430	100.0

Subsequently, two precautionary steps were taken to evaluate the reliability and validity of the items before they were used to collect data. Cronbach's alpha was used to determine reliability, and the items were thoroughly examined to decide whether or not they were comparable to existing literature on the issues under consideration. The questionnaires were then distributed electronically, and after 2 months, 446 were submitted electronically and automatically recorded on an Excel spreadsheet. Upon examination, 16 questionnaires were not fully completed; accordingly, no value necessitated their removal from the analysis. Thus, only 430 questionnaires were available for inclusion in this study.

Data analysis

Descriptive and inferential statistics were used to analyse the quantitative data. An exploratory factor analysis (EFA) was performed using the Statistical Package for Social Sciences (SPSS) version 28.0 to identify the VCM practices implemented in apparel firms in SSA. The identified factors were validated using a technique known as confirmatory factor analysis (CFA) via structural equation modelling (SEM). The model fit for CFA was determined using the following commonly used indices: Chi-square (χ^2 /degrees of freedom [*df*]), comparative fit index (CFI), (non) normed fit index (NFI) and root mean square error of approximation (RMSEA) benchmarked at (χ^2/df) < 2, CFI \geq 0.90, NFI \geq 0.90 and RMSEA \leq 0.080. Descriptive statistics, including the mean, variance, skewness, standard deviation and kurtosis, were used to show the central tendencies of the data. Finally, linear regression was used to analyse the data and determine the relationship between VCM practices and the performance of firms in the sub-Saharan apparel value chain. The following model was applied:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots \dots \dots \beta_n X_n + \epsilon \quad (1)$$

where Y = value creation outcomes, X_1 to X_n = value chain practices and ϵ = Error term.

Ethical considerations

An application for full ethical approval was made to North-West University Research Ethics Regulatory Committee (NWU-RERC). The ethical clearance number is NWU-00169-15-A9.

TABLE 2: Reliability analysis.

Reliability analysis	Dimension
Cronbach's alpha	0.689
Number of items	60.000

TABLE 3: Total explained variance and eigenvalues.

Component	Total	% of variance	Cumulative %
Customer service mgt	3.392	22.215	22.215
Information sharing	3.230	16.043	38.258
Mass customisation	2.631	11.733	49.991
Incentive re-alignment	2.379	8.011	58.002
Production smoothing	1.691	5.305	63.307
Risk management	1.145	4.796	68.103
Agile manufacturing	1.096	2.318	70.421
Strategic procurement	1.013	1.611	72.032

Results

Cronbach's alpha, an internal consistency measure, was used to test the reliability of the questionnaire items used in the study. Table 2 presents the composite reliability of the questionnaire used in this study after four rounds of redundant item removal.

The initial reliability analysis indicated that the instrument did not conform to the generally accepted Cronbach's alpha of 0.700. After removing seven redundant variables from the questionnaire, the reliability test yielded an alpha coefficient of 0.724. Cronbach's alpha exceeded the generally recommended threshold of 0.7, indicating that the variables were sufficiently correlated to measure the same construct (Charry et al., 2016). This means that the instrument used in this study had 53 items rather than the original 60, and these 53 items consistently measured the same characteristics on each aspect of the survey being interrogated.

Exploratory factor analysis was then carried out on the instrument's 53 items to determine the relevant value chain practices that drive value creation in sub-Saharan African apparel firms. This factor analysis procedure was used to statistically identify more prominent value chain practices from significant measurable value chain practices in apparel firms in SSA (Kline, 2014). The eigenvalues of the value chain practices extracted from the analysis are listed in Table 3.

Table 3 shows that among apparel firms in SSA, 'customer service management', explaining 22.215% of the variation, is the most influential factor among the identified practices. This large percentage underscores its pivotal role in the value chain and suggests prioritising customer-centric strategies and dedication to maintaining high service standards. This propensity towards 'customer service management' is consistent with firms' realisation that customer satisfaction is vital in building solid relationships that can lead to loyalty and repeat business, enhancing overall VCM (Das & Hassan, 2022). However, it is also essential to consider the cumulative display of all eight practices, which collectively account for 72.032% of the total variance, because the results also indicate

that although 'customer service management' appears to be at the forefront, a broader repertoire of practices significantly influences efficient and effective VCM. Practices such as 'transparent information sharing' and 'mass customisation', among others, also contribute to the operational efficacy of these firms. The 27.96% variance indicates that other VCM practices influence operational efficiency and effectiveness. Therefore, a comprehensive, multifaceted approach encapsulating all these practices is integral to reinforcing the quality of VCM.

Although the factor structure was used for exploratory factor analysis, it could not accurately predict value creation in sub-Saharan African apparel firms. Confirmatory factor analysis was used to determine whether all the identified value chain practices contributed to value creation in apparel firms. Table 4 displays the results of the CFA.

From Table 4, each component comprises a specific number of items that reflect the diversity and depth of the constructs under investigation. Given the measurement scale of 1–7, a mean score above 3.5 suggests that, on average, respondents consider VCM practices in apparel firms in the sub-Saharan region to be necessary. The loadings above 0.7 in a CFA for components describing value chain practices in the apparel value chain in the sub-Saharan region signify a solid and meaningful relationship between the observed variables and the latent constructs, reinforcing the validity and reliability of the measurement model. In addition, CFA results for the components describing value chain practices in the apparel value chain in the sub-Saharan region indicated a generally reasonable fit of the measurement model. The CFI and NFI values, ranging from 0.706 to 0.881 and 0.899 to 0.970, respectively, suggest satisfactory alignment between the proposed model and the observed data, with some components showing more robust fits. The RMSEA values, ranging from 0.034 to 0.080, indicate very good to reasonable fits, with a few components, such as 'Agile Manufacturing', exhibiting slightly higher RMSEA values.

While the model fit is generally acceptable, further investigation of the components with higher RMSEA values may be necessary for potential model refinement. Thus, these results support the hypothesis that there is a link between observed variables and a set of latent constructs describing VCM

TABLE 4: Goodness-of-fit indicators of models for value chain practices in sub-Saharan Africa.

Component	≤	μ'	λ	CFI	NFI	RAMSEA
Customer service management	8	5.4	0.881	0.911	0.980	0.059
Information sharing	7	4.8	0.789	0.963	0.914	0.034
Mass customisation	7	5.6	0.859	0.907	0.931	0.078
Incentive re-alignment	8	6.2	0.803	0.925	0.917	0.063
Production smoothing	5	5.1	0.768	0.899	0.950	0.047
Risk management	6	5.3	0.802	0.970	0.972	0.077
Agile manufacturing	7	6.0	0.727	0.909	0.930	0.080
Strategic procurement	5	4.7	0.706	0.943	0.929	0.071

CFI, comparative fit index; NFI, normed fit index; RAMSEA, root mean square error of approximation.

practices for value creation in the apparel industry in the sub-Saharan African region. The pairwise Pearson correlation analysis results in Table 5 quantify the direction and strength of the linear association between individual value chain practices and value creation in apparel firms in SSA.

The Pearson correlation coefficients computed between operational excellence (a proxy for value creation in this study) and the identified value chain practices indicated moderate ($0.3 < |r| < 0.5$) to strong ($r > \geq 0.5$) positive and statistically significant pairwise correlations between *value creation* and transparent information sharing ($|r| = 0.584$), strategic partnerships ($|r| = 0.398$), incentive realignment ($|r| = 0.512$), CSM ($|r| = 0.548$), risk management decisions ($|r| = 0.466$) and production smoothing ($|r| = 0.414$), agile manufacturing ($|r| = 0.309$) and strategic procurement ($|r| = 0.344$). The p -value of 0.01 indicates that all the identified value chain practices in this study are positively associated with value creation in apparel firms in SSA. This study investigates the effect of these identified value chain practices on value creation in the apparel industry. Table 6 shows the results of the multiple linear regression analysis performed using SPSS version 28.0.

As Table 7 shows, there is a linear relationship between value creation in SSA apparel firms and the value chain practices identified in this study. Indeed, the multiple R of 0.734467 indicates a robust linear relationship between the predictors, transparent information sharing, strategic partnerships, incentive realignment, CSM, risk management decision-making, production smoothing, strategic procurement and value creation in SSA apparel firms. Furthermore, the eight identified value chain practices that apparel firms undertake in the SSA region can explain 53.94% of the

TABLE 5: Pairwise correlation analysis of value chain practices and value creation.

Variable	r
Value creation (proxy: operational excellence)	1
Customer service	0.548†
Information sharing	0.584†
Mass customisation	0.398†
Incentive re-alignment	0.512†
Production smoothing	0.414†
Risk management	0.466†
Agile manufacturing	0.309†
Strategic procurement	0.344†

Note: Correlation is significant at the 0.05 level (two tailed).

†, Correlation is significant at the 0.01 level (two tailed).

TABLE 6: Fit and significance of the regression model.

Regression statistics	Value	ANOVA	Value
R	0.73446713	df	329.000000
R^2	0.53944190	Res. df	221.000000
-	-	SS	550.000010
Adj R^2	0.41671000	MS	72.066640
StdErr	5.07120000	F	2.391304
Observations	430.00000000	Sig F	0.034010

df , degrees of freedom; Res. df , residual degrees of freedom; StdErr, standard error; SS, sum of squares; MS, mean square; F , f -statistic; Sig F , significance. Statistically significant.

TABLE 7: Effect of value chain practices on value creation in apparel firms in the sub-Saharan Africa region.

Variables	Coeff	SE	t-Stat 2	SE	Sig	Lower 95%	Upper 95%
1. constant	22.701	1.305	11.209	4.462	0.034	43.949	78.04
Customer service management	3.004	1.286	10.770	2.004	0.008	5.227	3.227
Information sharing	2.136	1.154	7.276	1.306	0.042	2.420	2.200
Mass customisation	2.074	1.083	4.493	1.019	0.016	2.203	1.501
Incentive re-alignment	1.824	1.049	4.519	2.413	0.002	1.221	0.944
Production smoothing	1.603	1.008	9.113	1.035	0.019	-1.330	0.722
Risk management	1.255	0.902	3.076	0.999	0.008	-2.133	0.461
Agile manufacturing	0.899	0.654	1.119	1.021	0.018	0.528	0.035
Strategic procurement	0.872	0.636	1.051	0.898	0.037	-0.955	-0.638

Coeff, coefficient; SE, standard error, Sig, significance.

variance observed in value creation in the apparel firms in SSA. Finally, the observed values deviated from the regression line by a score of 5.0172 units, and the p -value was 0.03401, which was less than the conventional significance level of 0.05. The regression model was statistically significant. In other words, the model fits the data better than the model without the predictor variables. However, the current model explains approximately 53.94% of the variability in effective value chain practices after adjustments.

Consequently, approximately 46% of the variance was explained by factors not included in the model. This indicates that this study should include other essential variables affecting VCM practices.

As other determining factors affect value chain practices, firms, policymakers and stakeholders may need to adopt a holistic approach when designing effective VCM strategies. The next step was to determine the effect of each value chain practice on the value creation by apparel firms in SSA (Table 7).

In investigating the value chain practices influencing value creation in the apparel industry in SSA, the regression analysis yielded several notable results. The constant term in the model is 22.701 ($p < 0.05$), indicating statistical significance. This constant represents the predicted value of the dependent variable when all the other predictors are zero. Notably, CSM practices exhibit a statistically significant positive relationship with the dependent variable, namely value creation (proxy: operational excellence), with a coefficient of 3.004 ($p < 0.034$). This implies that a one-unit increase in CSM is associated with a 3.004 unit increase in value creation within apparel firms in the SSA region, holding other variables constant. Similarly, information-sharing practices in apparel firms in SSA displayed a positive and statistically significant relationship, with a coefficient of 2.136 ($p = 0.042$). This suggests enhanced information-sharing is associated with a 2.136 unit increase in the dependent variable. Mass customisation and incentive realignment practices also demonstrated positive relationships with the pendant variable, supported by coefficients of 2.074 ($p = 0.016$) and 1.824 ($p = 0.002$), respectively. Furthermore, production smoothing revealed a positive relationship with the dependent variable, as indicated by the coefficient of 1.603 ($p = 0.019$).

This implies that a one-unit increase in production smoothing is associated with an increase of 1.603 units in the dependent variable. In addition, 'risk management practices' in apparel firms in the SSA region display a positive relationship, with a coefficient of 1.255 ($p = 0.008$), indicating that higher levels of risk management are associated with a 1.255 unit increase in the dependent variable. 'Agile Manufacturing' and 'Strategic Procurement' also exhibit positive relationships, with coefficients of 0.899 ($p = 0.018$) and 0.872 ($p = 0.037$), respectively.

The confidence intervals presented provide a range within which the population parameters are likely to fall. Thus, at >95% confidence level, it is easy to conclude that CSM, information sharing, mass customisation, incentive realignment, risk management, production smoothing, agile manufacturing and strategic procurement practices have a positive impact on value creation in the apparel firms in SAA region. These results are consistent with the extant research on SCM.

Apparel value chain excellence framework

Analysing the empirical data obtained from this study led to the formulation of a holistic framework that aims to enhance operational excellence. This framework is designed to mitigate the barriers identified in the findings by employing VCM practices, which have shown significant positive correlations with value creation. The AVCEF is structured around core strategies empirically indicated to foster value creation within SME textile firms' supply chains. The AVCEF is founded on the notion that operational excellence is a function of internal efficiency and depends heavily on integrating external actors and market dynamics. It comprises seven key components: customer centricity, information convergence, customisation and agility, incentive alignment, operational fluidity, risk mitigation and strategic sourcing, as indicated in Figure 1.

The Apparel Value Chain Excellence Framework (AVCEF) encompasses critical aspects for achieving operational excellence in apparel businesses across SSA. The framework highlights the significance of apparel businesses adopting a customer-oriented approach by incorporating feedback and market trends into product development and promoting information convergence to facilitate seamless information sharing throughout the supply chain, enhancing decision-making and efficiency. Apparel businesses must prioritise

agility and customisation to promptly address customer needs without affecting timelines or costs and realign incentives across stakeholders to encourage collaboration and enhance output quality. Operational fluidity is also vital for apparel businesses to minimise bottlenecks and optimise inventory to satisfy demand, whereas proactive risk-mitigation strategies address potential disruptions to their operations. Strategic sourcing practices that emphasise the importance of quality, sustainability and reliability in supplier relationships and raw material procurement are necessary to ensure the continuity of operations. Collectively, these elements form a comprehensive framework that steers apparel companies towards operational excellence and responsiveness in an ever-changing industrial landscape.

Framework implementation strategy

When implementing the AVCEF, companies embark on a systematic journey with several vital phases. The journey begins with the Preparation Phase, where a thorough analysis aligns company goals with framework components such as mapping out the current value chain, engaging stakeholders and setting initial objectives. The pilot phase is followed by introducing controlled pilot programmes to test component effectiveness, such as customer-centricity initiatives or feedback systems. After successful pilots, the Implementation Phase broadens framework integration by enhancing information systems, adapting production processes, revising incentive structures, streamlining workflows, instituting risk management protocols and optimising procurement. Performance monitoring establishes relevant Key Performance Indicators (KPIs) for each component and conducts regular review meetings for assessment and feedback collection. Adjustments and refinements occur iteratively, based on outcomes and stakeholder inputs, ensuring responsiveness to industry dynamics. The Scale-Up Phase expands implementation across the value chain with training, technological investments and market expansion. The Long-Term Evolution phase underscores the need for ongoing adaptation to industry shifts, guided by insights

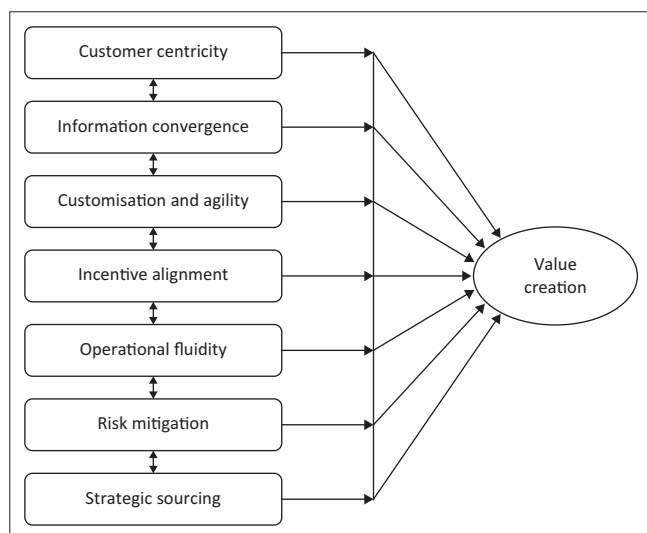


FIGURE 1: The apparel value chain excellence framework.

and data to maintain operational excellence. Through this strategic approach, apparel firms transform towards customer centricity, agility and resilience, with AVEF serving as a dynamic blueprint for operational excellence enhancement.

Discussion

The primary goal of this study was to unearth the VCM practices pivotal for value creation within apparel companies in SSA and to construct a robust framework to bolster this process. This study proposes the AVCEF, a systematic blend of principles to navigate the unique market dynamics of the apparel industry. In line with the theoretical underpinnings of Porter's value chain model (Ajayi & Laseinde, 2021, 2019; Porter, 2001) and the RBV of the firm (Adetoyinbo et al., 2023; Barney, 2001), the AVCEF extends beyond isolated strategies by integrating a holistic array of practices from customer engagement and information systems to operational agility and ethical sourcing. The AVCEF's customer-centricity emphasises tailoring operations to meet customer needs, whereas agile production practices align with the need for flexible responses to market variability (Ding et al., 2023; Khan et al., 2024).

The AVCEF framework demonstrated validity by explaining 53.9% of the variance in value creation among the firms studied. This aligns with the theoretical assumption that the effective management of value chain elements can significantly enhance firm performance (Agostino et al., 2023; Cohen & Kouvelis, 2021; Khoza et al., 2022). However, the framework left 46.1% of the variance unexplained, indicating that additional potentially overlooked determinants of value creation may exist. This discrepancy between the theory and observed results suggests the presence of complex, interdependent factors that have not yet been fully recognised or integrated into the AVCEF framework. These factors could include macroeconomic stability, technological advancements central to the dynamic capabilities theory (Bodendorf & Franke, 2024), which could help firms adapt to fast-paced market changes (Mandal, 2020), and organisation-specific elements, such as leadership strength, company culture and innovation, central to theories on organisational behaviour and strategic management (Barney, 2001). Future studies should broaden their scope and investigate elusive variables that may be key to creating value in apparel firms in SSA. These variables include advanced market analytics, cross-cultural and consumer understanding, technological innovations, leadership, and organisational culture. According to the VRIO framework (Barney, 2001; Chatzoglou et al., 2018), these valuable, rare, well-organised and difficult-to-imitate internal capabilities are crucial for creating a sustained competitive advantage for effective value creation in apparel firms in SSA.

Theoretical and practical implications

This study explores the crucial management practices that drive value for apparel firms in SSA and establishes the foundational AVCEF. This study contributes significantly

to the literature on VCM theory, particularly in the underrepresented sub-Saharan African apparel sector. However, this study's inability to fully explain value creation underscores the need for an enhanced analytical framework that considers external market forces and reinforces internal organisational attributes driving value in these firms and the study's limitations in explaining the unexplained variance present opportunities for future research. A more comprehensive and adaptable VCM framework can be developed by thoroughly understanding all the factors contributing to value creation, aiding firms in navigating value chain complexities, achieving full growth potential and sustaining value creation. While this study presents numerous opportunities, future longitudinal research is necessary to confirm causality and observe the evolving impact of VCM practices over time, given its cross-sectional design. Qualitative methods can capture the intricate reality of VCM practices within dynamic and challenging sectors.

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Author's contributions

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Data availability

The data that support the findings of this study are available from the corresponding author, A.M., upon reasonable request.

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References

- Adetoyinbo, A., Trienekens, J., & Otter, V. (2023). Contingent resource-based view of food netchain organisation and firm performance: A comprehensive quantitative framework. *Supply Chain Management: An International Journal*, 28(6), 957–974. <https://doi.org/10.1108/SCM-11-2022-0448>
- Agostino, M., Giunta, A., Ruberto, S., & Scalera, D. (2023). Global value chains and energy-related sustainable practices. Evidence from enterprise survey data. *Energy Economics*, 127(Part A), 107068. <https://doi.org/10.1016/j.eneco.2023.107068>
- Ajayi, M.O., & Laseinde, O.T. (2021). Application of porter's value chain model for construing potential prospects and lacunas in industry 4.0 adoption by 21st Century manufacturers. In S. Trzcielinski, B. Mrugalska, W. Karwowski, E. Rossi, & M. Di Nicolantonio (Eds.), *Advances in manufacturing, production management and process control* (vol. 274, pp. 353–363). Springer International Publishing

- Akenroye, T.O., Abubakre, A., Elbaz, J., Vishnu, C.R., Beka Be Nguema, J.-N., Rana, G., Ihua, U.B., Kalili, H., & Falode, O. (2022). Modeling the barriers to multistakeholder collaboration for COVID-19 pandemic response: Evidence from Sub-Saharan Africa. *International Public Management Journal*, 25(1), 192–216. <https://doi.org/10.1080/10967494.2021.1970061>
- Ali, H., Gueyie, J.-P., & Chrysostome, E.V. (2023). Gender, credit risk and performance in Sub-Saharan African microfinance institutions. *Journal of African Business*, 24(2), 235–259. <https://doi.org/10.1080/15228916.2022.2079275>
- Ayodeji, Y., Rjoub, H., & Özgüt, H. (2023). Achieving sustainable customer loyalty in airports: The role of waiting time satisfaction and self-service technologies. *Technology in Society*, 72, 102106. <https://doi.org/10.1016/j.techsoc.2022.102106>
- Baehaqi, M., Cahyono, R.S., & Riptiono, S. (2023). Determining value co-creation behaviour toward customer loyalty and customer retention on the SRC's business platform. *Matrik J. Manaj. Strategi Bisnis Dan Kewirausahaan*, 17(1), 48–60. <https://doi.org/10.24843/MATRIK:JMBK.2023.v17.i01.p04>
- Barker, J.M., Hofer, C., Hoberg, K., & Eroglu, C. (2022). Supplier inventory leanness and financial performance. *Journal of Operations Management*, 68(4), 385–407. <https://doi.org/10.1002/joom.1185>
- Barney, J.B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6), 643–650. <https://doi.org/10.1177/014920630102700602>
- Bhorat, H., Kanbur, R., Rooney, C., & Steenkamp, F. (2019). 8. Sub-Saharan Africa's manufacturing sector: Building complexity. In A. Noman, J.E. Stiglitz, & R. Kanbur (Eds.), *The quality of growth in Africa* (pp. 234–263). Columbia University Press.
- Bodendorf, F., & Franke, J. (2024). The technological transformation process for dynamic capabilities in business operations. *IEEE Transactions on Engineering Management*, 71, 3671–3687. <https://doi.org/10.1109/TEM.2024.3349478>
- Boys, J., Andreoni, A., & UNU-WIDER. (2020). *Value chain directionality, upgrading, and industrial policy in the Tanzanian textile and apparel sectors* (93rd edn., vol. 2020). UNU-WIDER.
- Brieger, S.A., & De Clercq, D. (2019). Entrepreneurs' individual-level resources and social value creation goals: The moderating role of cultural context. *International Journal of Entrepreneurial Behavior & Research*, 25(2), 193–216. <https://doi.org/10.1108/IJEBR-12-2017-0503>
- Casciani, D., Chkanikova, O., & Pal, R. (2022). Exploring the nature of digital transformation in the fashion industry: Opportunities for supply chains, business models, and sustainability-oriented innovations. *Sustainability: Science, Practice and Policy*, 18(1), 773–795. <https://doi.org/10.1080/15487733.2022.2125640>
- Cennamo, C., & Santaló, J. (2019). Generativity tension and value creation in platform ecosystems. *Organization Science*, 30(3), 617–641. <https://doi.org/10.1287/orsc.2018.1270>
- Charry, K., Coussement, K., Demoulin, N., & Heuvinck, N. (2016). *Marketing research with IBM® SPSS statistics: A practical guide*. Routledge.
- Chatzoglou, P., Chatzoudes, D., Sarigiannidis, L., & Theriou, G. (2018). The role of firm-specific factors in the strategy-performance relationship: Revisiting the resource-based view of the firm and the VRIO framework. *Management Research Review*, 41(1), 46–73. <https://doi.org/10.1108/MRR-10-2016-0243>
- Chen, C.-K., Palma, F., & Reyes, L. (2019). Reducing global supply chains' waste of overproduction by using lean principles: A conceptual approach. *International Journal of Quality and Service Sciences*, 11(4), 441–454. <https://doi.org/10.1108/IJQSS-03-2018-0024>
- Cohen, M.A., & Kouvelis, P. (2021). Revisit of AAA excellence of global value chains: Robustness, resilience, and realignment. *Production and Operations Management*, 30(3), 633–643. <https://doi.org/10.1111/poms.13305>
- Colnar, S., Radević, I., Martinović, N., Lojpur, A., & Dimovski, V. (2022). The role of information communication technologies as a moderator of knowledge creation and knowledge sharing in improving the quality of healthcare services. *PLoS One*, 17(8), e0272346. <https://doi.org/10.1371/journal.pone.0272346>
- Comrey, A.L., & Lee, H.B. (2013). *A first course in factor analysis*. Psychology press.
- Cullen, J.M., & Cooper, D.R. (2022). Material flows and efficiency. *Annual Review of Materials Research*, 52(1), 525–559. <https://doi.org/10.1146/annurev-matsci-070218-125903>
- Das, S., & Hassan, H.M.K. (2022). Impact of sustainable supply chain management and customer relationship management on organisational performance. *International Journal of Productivity and Performance Management*, 71(6), 2140–2160. <https://doi.org/10.1108/IJPPM-08-2020-0441>
- Dey, A. K. (2010). *Mass customization and beyond – Application of co-creation & postponement* (pp. 1–14). SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.1552725>
- Diem Le, C.T., Pakurár, M., Kun, I.A., & Oláh, J. (2023). Correction: The impact of factors on information sharing: An application of meta-analysis. *PLoS One*, 18(12), e0296555. <https://doi.org/10.1371/journal.pone.0296555>
- Ding, B., Ferràs Hernández, X., & Agell Jané, N. (2023). Combining lean and agile manufacturing competitive advantages through industry 4.0 technologies: An integrative approach. *Production Planning & Control*, 34(5), 442–458. <https://doi.org/10.1080/09537287.2021.1934587>
- Durand, C., & Milberg, W. (2020). Intellectual monopoly in global value chains. *Review of International Political Economy*, 27(2), 404–429. <https://doi.org/10.1080/09692290.2019.1660703>
- Erhun, F., Kraft, T., & Wijnsma, S. (2021). Sustainable triple-a supply chains. *Production and Operations Management*, 30(3), 644–655. <https://doi.org/10.1111/poms.13306>
- Feizabadi, J. (2022). Machine learning demand forecasting and supply chain performance. *International Journal of Logistics Research and Applications*, 25(2), 119–142. <https://doi.org/10.1080/13675567.2020.1803246>

- Feldman, E.R., & Sakhartov, A.V. (2022). Resource redeployment and divestiture as strategic alternatives. *Organization Science*, 33(3), 926–945. <https://doi.org/10.1287/orsc.2021.1474>
- Fernandez-Stark, K., Bamber, P., & Couto, V. (2022). *Analysis of the textile and clothing industry global value chains: Summary*. Inter-American Development Bank.
- Ferreira, K.A., Toledo, M.L., & Rodrigues, L.F. (2021). Postponement practices in the Brazilian Southeast wine sector. *The International Journal of Logistics Management*, 32(1), 6–23. <https://doi.org/10.1108/IJLM-10-2019-0292>
- Fet, A.M., & Deshpande, P.C. (2023). Closing the loop: Industrial ecology, circular economy and material flow analysis. In A.M. Fet (Ed.), *Business transitions: A path to sustainability* (pp. 113–125). Springer International Publishing.
- Fofana, S.B., Nyarko, F.A., Mensah, L.D., & Takyi, G. (2023). Implementation of flexible manufacturing systems in Africa: Multiple case studies in the Gambia and Ghana. *Nigerian Journal of Technological Development*, 20(1), 91–101. <https://doi.org/10.4314/njtd.v20i1.1401>
- Gemmill-Herren, B., Baker, L.E., & Daniels, P.A. (Eds.). (2021). *True cost accounting for food: Balancing the scale*. Routledge.
- Graedel, T.E. (2019). Material flow analysis from origin to evolution. *Environmental Science & Technology*, 53(21), 12188–12196. <https://doi.org/10.1021/acs.est.9b03413>
- Gunasekaran, A., Yusuf, Y.Y., Adeleye, E.O., Papadopoulos, T., Kovvuri, D., & Geyi, D.G. (2019). Agile manufacturing: An evolutionary review of practices. *International Journal of Production Research*, 57(15–16), 5154–5174. <https://doi.org/10.1080/00207543.2018.1530478>
- Helmold, M., & Terry, B. (2021). *Operations and supply management 4.0: Industry insights, case studies and best practices*. Springer.
- Hintze, S. (2015). *Value chain marketing: A marketing strategy to overcome immediate customer innovation resistance*. Springer International Publishing.
- Holweg, M., & Helo, P. (2014). Defining value chain architectures: Linking strategic value creation to operational supply chain design. *International Journal of Production Economics*, 147(Part B), 230–238. <https://doi.org/10.1016/j.ijpe.2013.06.015>
- Ikuabe, M., Oke, A.E., & Aigbavboa, C. (2020). Impact of contractors' opportunism on construction project transaction costs: Construction professionals' perception. *Journal of Financial Management of Property and Construction*, 25(1), 125–141. <https://doi.org/10.1108/JFMP-04-2019-0040>
- Ivanov, D., Tsioulaniadis, A., & Schönberger, J. (2021). *Global supply chain and operations management: A decision-oriented introduction to the creation of value* (3rd edn.). Springer.
- Jafari, H., Esлами, M.H., & Paulraj, A. (2022). Postponement and logistics flexibility in retailing: The moderating role of logistics integration and demand uncertainty. *International Journal of Production Economics*, 243, 108319. <https://doi.org/10.1016/j.ijpe.2021.108319>
- Jagani, S., Deng, X., Hong, P.C., & Mashhadi Nejad, N. (2024). Adopting sustainability business models for value creation and delivery: An empirical investigation of manufacturing firms. *Journal of Manufacturing Technology Management*, 35(2), 360–382. <https://doi.org/10.1108/JMTM-03-2023-0099>
- Khan, M.Z., Kumar, A., Liu, Y., Gupta, P., & Sharma, D. (2024). Modeling enablers of agile and sustainable sourcing networks in a supply chain: A case of the plastic industry. *Journal of Cleaner Production*, 435, 140522. <https://doi.org/10.1016/j.jclepro.2023.140522>
- Khoza, S., Mafini, C., & Loury Okoumba, W.V. (2022). Lean practices and supply-chain competitiveness in the steel industry in Gauteng, South Africa. *South African Journal of Economic and Management Sciences*, 25(1), a4617. <https://doi.org/10.4102/sajems.v25i1.4617>
- Kilima, F.T.M., & Kurwijila, L.R. (2020). Integrating smallholder farmers to commodity value chains in Sub-Saharan Africa: Challenges, prospects and policy issues. In B.R. Singh, A. Safalaoh, N.A. Amuri, L.O. Eik, B.K. Sitaula, & R. Lal (Eds.), *Climate impacts on agricultural and natural resource sustainability in Africa* (pp. 407–428). Springer International Publishing.
- Kline, P. (2014). *An easy guide to factor analysis*. Routledge. Retrieved from [https://books.google.co.za/books?id=jJTsAgAAQBAJ&dq=Kline,+P.+\(2014\).+An+easy+guide+to+factor+analysis.+Routledge.&lr=&source=gbs_navlinks_s](https://books.google.co.za/books?id=jJTsAgAAQBAJ&dq=Kline,+P.+(2014).+An+easy+guide+to+factor+analysis.+Routledge.&lr=&source=gbs_navlinks_s)
- Laner, D., & Rechberger, H. (2016). Material flow analysis. In M. Finkbeiner (Ed.), *Special types of life cycle assessment* (pp. 293–332). Springer Netherlands.
- Li, C.-Y., & Fang, Y.-H. (2022). The more we get together, the more we can save? A transaction cost perspective. *International Journal of Information Management*, 62, 102434. <https://doi.org/10.1016/j.ijinfomgt.2021.102434>
- Liu, N., Chow, P.-S., & Zhao, H. (2020). Challenges and critical successful factors for apparel mass customization operations: Recent development and case study. *Annals of Operations Research*, 291(1–2), 531–563. <https://doi.org/10.1007/s10479-019-03149-7>
- Lotfi, R., Safavi, S., Gharehbaghi, A., Ghaboulain Zare, S., Hazrati, R., & Weber, G.-W. (2021). Viable supply chain network design by considering blockchain technology and cryptocurrency. *Mathematical Problems in Engineering* (1–18). Hindawi Publishing Corporation.
- Luu, N., Cadeaux, J., & Ngo, L.V. (2018). Governance mechanisms and total relationship value: The interaction effect of information sharing. *Journal of Business & Industrial Marketing*, 33(5), 717–729. <https://doi.org/10.1108/JBIM-08-2017-0191>
- Manda, E., Mwanaumo, E., Thwala, W.D., Kasongo, R., & Chisumbe, S. (2023). Lean supply chain practices in the Zambian construction industry. In C. Aigbavboa, J.N. Mojekwu, W.D. Thwala, L. Atepor, E. Adinyira, G. Nani, & E. Bamfo-Agyei (Eds.), *Sustainable education and development – Sustainable industrialization and innovation* (pp. 313–326). Springer International Publishing.
- Manda, S., Tallontire, A., & Dougill, A.J. (2020). Outgrower schemes and sugar value-chains in Zambia: Rethinking determinants of rural inclusion and exclusion. *World Development*, 129, 104877. <https://doi.org/10.1016/j.worlddev.2020.104877>
- Mandal, P.C. (2020). The changing marketplace: Challenges, strategies, and initiatives. *International Journal of Business Strategy and Automation*, 1(3), 34–43. <https://doi.org/10.4018/IJBSA.2020070103>
- Morris, M., Barnes, J., & Kaplan, D. (2021). Value chains and industrial development in South Africa. In A. Oqubay, F. Tregenna, & I. Valodia (Eds.), *The Oxford handbook of the South African economy* (pp. 374–395). Oxford University Press.
- Mouzas, S., & Bauer, F. (2022). Rethinking business performance in global value chains. *Journal of Business Research*, 144, 679–689. <https://doi.org/10.1016/j.jbusres.2022.02.012>
- Nabass, E.H., & Abdallah, A.B. (2019). Agile manufacturing and business performance: The indirect effects of operational performance dimensions. *Business Process Management Journal*, 25(4), 647–666. <https://doi.org/10.1108/BPMJ-07-2017-0202>
- Nenni, M.E., Giustiniano, L., & Pirolo, L. (2013). Demand forecasting in the fashion industry: A review. *International Journal of Engineering Business Management*, 5, 37. <https://doi.org/10.5772/56840>
- Netland, T.H., & Powell, D.J. (Eds.). (2017). *The Routledge companion to lean management*. Routledge.
- Obonyo, E., Formentini, M., Ndiritu, S.W., & Naslund, D. (2023). Information sharing in African perishable agri-food supply chains: A systematic literature review and research agenda. *Journal of Agribusiness in Developing and Emerging Economies*. <https://doi.org/10.1108/JADEE-12-2022-0268>
- Pasquali, G., Godfrey, S., & Nadvi, K. (2021). Understanding regional value chains through the interaction of public and private governance: Insights from Southern Africa's apparel sector. *Journal of International Business Policy*, 4(3), 368–389. <https://doi.org/10.1057/s42214-020-00071-9>
- Penrose, E.T. (2009). *The theory of the growth of the firm* (4th ed., Rev. edn.). Oxford University Press.
- Peter, O., Pradhan, A., & Mbohwa, C. (2023). Industry 4.0 concepts within the sub-Saharan African SME manufacturing sector. *Procedia Computer Science*, 217, 846–855. <https://doi.org/10.1016/j.procs.2022.12.281>
- Porter, M.E. (2001). The value chain and competitive advantage. *Understanding Business Processes*, 2, 50–66.
- Rahman, M.M., Bari, A.B.M.M., Ali, S.M., & Taghipour, A. (2022). Sustainable supplier selection in the textile dyeing industry: An integrated multi-criteria decision analytics approach. *Resources, Conservation & Recycling Advances*, 15, 200117. <https://doi.org/10.1016/j.rcradv.2022.200117>
- Ramanathan, U., & Gunasekaran, A. (2014). Supply chain collaboration: Impact of success in long-term partnerships. *International Journal of Production Economics*, 147(Part B), 252–259. <https://doi.org/10.1016/j.ijpe.2012.06.002>
- Rane, N.L., Achari, A., & Choudhary, S.P. (2023). Enhancing customer loyalty through quality of service: Effective strategies to improve customer satisfaction, experience, relationship, and engagement. *International Research Journal of Modernization in Engineering Technology and Science*, 5(5), 427–452. <https://doi.org/10.56726/IRJMETS38104>
- Ren, S., Chan, H.-L., & Siqin, T. (2020). Demand forecasting in retail operations for fashionable products: Methods, practices, and real case study. *Annals of Operations Research*, 291(1–2), 761–777. <https://doi.org/10.1007/s10479-019-03148-8>
- Rewers, P., & Diakun, J. (2021). A heijunka study for the production of standard parts included in a customized finished product. *PLoS One*, 16(12), e0260515. <https://doi.org/10.1371/journal.pone.0260515>
- Rožanec, J.M., Kažič, B., Škrjanc, M., Fortuna, B., & Mladenčić, D. (2021). Automotive OEM demand forecasting: A comparative study of forecasting algorithms and strategies. *Applied Sciences*, 11(15), 6787. <https://doi.org/10.3390/app11156787>
- Saghiri, S. (Sam), & Hill, A. (2014). Supplier relationship impacts on postponement strategies. *International Journal of Production Research*, 52(7), 2134–2153. <https://doi.org/10.1080/00207543.2013.857053>
- Saikouk, T., Fattam, N., Angappa, G., & Hamdi, A. (2021). The interplay between inter-personal and inter-organizational relationships in coordinating supply chain activities. *The International Journal of Logistics Management*, 32(3), 898–917. <https://doi.org/10.1108/IJLM-11-2020-0443>
- Saleh, R., & Almarri, A. (2024). Impacts of strategic partnership on technological transformation on manufacturing firms. *Texila International Journal of Management*, 10(1), 76–84. <https://doi.org/10.21522/TIJMG.2015.10.01.Art008>
- Schilling, L., & Seuring, S. (2022). Sustainable value creation through information technology-enabled supply chains in emerging markets. *The International Journal of Logistics Management*, 33(3), 1001–1016. <https://doi.org/10.1108/IJLM-04-2021-0206>
- Schmidt, C.G., & Wagner, S.M. (2019). Blockchain and supply chain relations: A transaction cost theory perspective. *Journal of Purchasing and Supply Management*, 25(4), 100552. <https://doi.org/10.1016/j.pursup.2019.100552>
- Scott, R.L., & Schmidt, E.K. (2013). Supply chain management: Workforce education. In *Proceedings of the 2013 IEEE International Conference on Industrial Engineering and Engineering Management* (pp. 906–910). December 1, 2013. Purdue University.
- Shekarian, E., Ijadi, B., Zare, A., & Majava, J. (2022). Sustainable supply chain management: A comprehensive systematic review of industrial practices. *Sustainability*, 14(13), 7892. <https://doi.org/10.3390/su14137892>
- Shekhar, & Das, D. (2023). Enablers of 'creating shared value': A total interpretive structural modeling–olarity approach. *Global Journal of Flexible Systems Management*, 24(2), 291–318. <https://doi.org/10.1007/s40171-023-00340-5>

- Shuaibu, M., & Nchake, M. (2021). Impact of credit market conditions on agriculture productivity in Sub-Saharan Africa. *Agricultural Finance Review*, 81(4), 520–534. <https://doi.org/10.1108/AFR-05-2020-0063>
- Siawsohit, C., & Gaukler, G.M. (2021). Offsetting omnichannel grocery fulfillment cost through advance ordering of perishables. *International Journal of Production Economics*, 239, 108192. <https://doi.org/10.1016/j.ijpe.2021.108192>
- Singhry, H.B., & Abd Rahman, A. (2019). Enhancing supply chain performance through collaborative planning, forecasting, and replenishment. *Business Process Management Journal*, 25(4), 625–646. <https://doi.org/10.1108/BPMJ-03-2017-0052>
- Sudusinghe, J.I., & Seuring, S. (2022). Supply chain collaboration and sustainability performance in circular economy: A systematic literature review. *International Journal of Production Economics*, 245(C), 108402. <https://doi.org/10.1016/j.ijpe.2021.108402>
- Sun, S., & Ertz, M. (2024). Value creation and sustainable growth of sharing economy platforms: A value network perspective. *Technology Analysis & Strategic Management*, 36, 1–14. <https://doi.org/10.1080/09537325.2024.2311276>
- Tadayonrad, Y., & Ndiaye, A.B. (2023). A new key performance indicator model for demand forecasting in inventory management considering supply chain reliability and seasonality. *Supply Chain Analytics*, 3, 100026. <https://doi.org/10.1016/j.sca.2023.100026>
- Tawse, A., & Tabesh, P. (2023). Thirty years with the balanced scorecard: What we have learned. *Business Horizons*, 66(1), 123–132. <https://doi.org/10.1016/j.bushor.2022.03.005>
- Turker, D., & Altuntas, C. (2014). Sustainable supply chain management in the fast fashion industry: An analysis of corporate reports. *European Management Journal*, 32(5), 837–849. <https://doi.org/10.1016/j.emj.2014.02.001>
- Tyapukhin, A.P. (2023). Value chain management versus supply chain management. *International Journal of Management Concepts and Philosophy*, 16(4), 335–353. <https://doi.org/10.1504/IJMCP.2023.133790>
- Williamson, O.E. (2008). Outsourcing: Transaction cost economics and supply chain management. *Journal of Supply Chain Management*, 44(2), 5–16. <https://doi.org/10.1111/j.1745-493X.2008.00051.x>
- Xie, M. (2021). A study on the mechanism of information sharing between customer involvement and new product development. *E3S Web of Conferences*, 235, 03038. <https://doi.org/10.1051/e3sconf/202123503038>
- Yang, C., Tian, K., & Gao, X. (2023). Supply chain resilience: Measure, risk assessment and strategies. *Fundamental Research*, S266732582300095X. <https://doi.org/10.1016/j.fmre.2023.03.011>
- Yang, Y., Zheng, Y., Xie, G., & Tian, Y. (2022). The influence mechanism of strategic partnership on enterprise performance: Exploring the chain mediating role of information sharing and supply chain flexibility. *Sustainability*, 14(8), 4800. <https://doi.org/10.3390/su14084800>
- Yildiz Çankaya, S. (2020). The effects of strategic sourcing on supply chain strategies. *Journal of Global Operations and Strategic Sourcing*, 13(2), 129–148. <https://doi.org/10.1108/JGOSS-01-2019-0002>
- Žabkar, V., & Arslanagić-Kalajdžić, M. (2013). The impact of corporate reputation and information sharing on value creation for organizational customers. *South East European Journal of Economics and Business*, 8(2), 42–52. <https://doi.org/10.2478/jeb-2013-0009>
- Zipfel, A., Wink, K., & Reinhart, G. (2020). *Incentive system framework for information sharing in value-adding networks*. Fraunhofer Research Institution for Casting, Composite and Processing Technology IGCV.