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Supply Chain Leadership in a Developing Economy for Sustainable Innovation and Competitiveness: The Case of Johannesburg Stock Exchange-Listed Companies

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Abstract: The supply chain leadership (SCL) concept has gradually gained traction among various stakeholders such as legislators and specialists because of its dependable practices for companies in sustainable innovation and competitiveness across developing economies. The effective implementation of SCL strategic actions in a company can initiate sustainable innovation and competitiveness at each level of the company. Statistical data collection was performed for 46 of the top 100 Johannesburg Stock Exchange (JSE)-listed companies through an online Survey Monkey questionnaire. The primary purpose of this study was to identify the SCL strategic actions that are undertaken by companies in a developing economy regarding sustainable innovation and competitiveness. The findings significantly reveal empirical insights for companies to include and leverage in SCL strategic actions that influence sustainable innovation and competitiveness in an emerging economy. The findings show that firms operating within developing economies must adopt, and recognize the importance of, sustainable innovation and competitiveness in their practices for the betterment of the goods and services provided to the market. A major contribution is offered to the literature for the assistance and planning of sustainable innovation and competitive practice in developing economies in a global environment. This study further offers a robust recognition of, and information about, the characteristics and strategies that commonly lead to SCL being prioritised by the top 100 JSE-listed companies.

Keywords: developing economy; supply chain leadership; supply chain management; sustainable innovation; JSE-listed companies; competitiveness



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1. Introduction

Supply chain management (SCM) mainly focuses on, amongst other things, the optimisation of customer satisfaction. Neglecting the most significant aspects of SCM could therefore be damaging to any type of business for which SCM is possibly a competitive differentiator [1,2]. However, the value of SCM is reflected in how firms have used their supply chains strategically to gain an advantage over peers, as their competencies influence growth through sustainable innovation and competitiveness [3]. To implement and capitalise on the latest and sustainable innovations, companies require talent, skills, and experience, as well as in-depth business and supply chain knowledge to apply the latest tools and methods [4]. Most sustainable innovations in SCM, however, have built on existing achievements and the reconfiguration of familiar methods and technologies rather than inventing new ones [5]. Proponents of SCM therefore recognise that a shift in processes and organisational approaches is necessary to compete in the market, specifically in managing and analysing the flow of goods and materials [6]. While firms in a global setting are generally motivated to accelerate performance to gain competitiveness through their supply chains [7], political changes, unstable economies, a lack of basic infrastructure, and the inadequate application of business administration knowledge are prevalent in developing countries [8]. In this regard, Brown and Murray [9] suggest the approach of a

continuous improvement through sustainable innovation and competitiveness as a panacea that is critical for the success of a company.

As the current business environment is very competitive, firms with inimitable resources have more opportunities to attain a superior performance [10]. Brem and Viardot [11] posit that sustainable innovation is one of the key drivers of performance and growth and ought to play a central role in organisations' approach to leadership [12]. A key purpose of sustainable innovation is to differentiate firms' products for competitiveness in the market [13]. However, emerging economies can present ineffective channels of circulation that do not reach consumers consistently or reliably [14], to the extent that survival in a competitive emerging economy will require the approach of supply chain flexibility from supply chain leaders who can cope with elements of uncertainty [15]. In essence, thoughtful supply chain planning should consider elements concerning the future not just as being critical to success, but also as a requirement for survival [16]. In addition, supply chain leaders should keep in touch with other aspects of culture, history, and politics, as these factors could have an effect to the detriment of the company and its stakeholders at any time [17].

Businesses in developing economies have seen a shift towards becoming more sophisticated than had previously been the case. Tatham, Wu, Kovács, and Butcher [18] allude to an increase in the perception that the basic structures of businesses may need to be revisited, considering emerging changes in the global business environment. Even routine SCM issues have become complex, given the breadth of intertwined issues that must be considered [19]. For example, the various challenges eminent in developing economies pose a challenge to how consumers access goods and services, whereas a different situation prevails in developed economies, in which there are large retailers in the supply chain that are accessible to consumers [14]. A smart supply chain also requires sustainable innovation in products or services, and the processes behind the actions should be developed intelligently [20].

Due to globalisation and the spread of customers and suppliers across the globe, two questions raised by [21] become prominent. (1) How are companies from developing economies in which there are no proper and orderly supply chains in various industries likely to respond to change? (2) What would be the impact on supply chains when the market growth for various products is driven primarily by developing economies? These questions put the spotlight on the scantiness of research that focuses on supply chain leadership (SCL) from a developing economy perspective for sustainable innovation and competitiveness. Although studies on developing economies are gradually gaining momentum [22], not many of these studies have been conducted at the supply chain level, and few studies have focused on supply chain procedures in developing countries [21]. Similarly, there seems to be insufficient knowledge and awareness of the strategic actions to be performed for SCL from emerging market perspectives that focus on the issues of sustainable innovation and competitiveness. This is an issue of great significance to the discipline of SCM, because it is deemed necessary that firms that strive to create a competitive advantage enhance their strategic actions in terms of sustainable innovation and competitiveness.

The main aim of this study was to identify the SCL strategic actions to be undertaken by companies from emerging economies regarding sustainable innovation and competitiveness. SCL strategic actions could be helpful in developing a profile of South African supply chain leaders from Johannesburg Stock Exchange (JSE)-listed companies. At the core, the research question for this study was as follows: what are the SCL strategic actions to be taken by companies in a developing economy regarding sustainable innovation and competitiveness? Therefore, the research hypotheses to guide the investigation for this study are twofold:

Research Hypothesis 1. *Subjective opinions on SCL in a developing economy will highlight sustainable innovation and competitiveness as necessary activities for JSE-listed companies;*

Research Hypothesis 2. *Training and development will allow for proper implementation of SCL for sustainable innovation and competitiveness within a JSE-listed company.*

The rest of this article progresses as follows. Section 2 delves into the literature review; Section 3 sets out the research methodology; Section 4 presents the empirical results of the study; Section 5 discusses the results; Section 6 offers the significance of the study; Section 7 draws conclusions and makes recommendations; and Section 8 describes the limitations of the study and possibilities for future studies.

2. Literature Review

2.1. Leadership

Leadership is a complex concept that has been discussed for many years, and yet there is still no single definition agreed upon by all [23], and it can be defined from a multidimensional perspective [24]. Studies on leadership have traditionally focused on the features and behaviours of people, and on the impact on teams and associations [25]. The concept of leadership is typically defined by the behavior, capabilities, and character of leaders. It revolves around group dynamics influenced by social factors and centers on shared goals, intentions, visions, or objectives [26]. Researchers in operations and SCM have examined the idea of leadership at an executive level, although they tend to view control and leadership interchangeably [27]. However, leadership behaviours can broadly be divided into transformational, transactional, and laissez-faire leadership styles [28].

2.1.1. Transformational Leadership

Generally, transformational leaders are perceived as inspiring figures to their followers, encouraging them to embrace goals and values that resonate with the leader's vision, who are asked to accept targets and principles that are aligned with the vision of the leader [29,30]. Transformational leadership includes four behaviours, namely idealised influence or charisma, individualised consideration, inspirational motivation, and intellectual stimulation [12,31–39]. Transformational leaders can stimulate and influence their supporters [40] by influencing the process to exchange valued rewards for performance [41]. Compared to transactional leadership, transformational leadership has advantages of leadership and organisational effectiveness [42]. However, transformational leadership is criticised for having parameters that are difficult to define, as it is broad-based in its nature and therefore covers a range of facets, such as creating a vision, motivating, being a change agent, building trust, and many other qualities [32].

2.1.2. Transactional Leadership

Transactional leadership depends on individual initiative to effect change as well as the notion that junior staff members and procedures work effectively when situated within a clear hierarchy [1]. Arguably, transactional leadership is a short-term managerial orientation that has limited capability to generate organisations that are sustainable and competitive in the long term [43]. The focus is on the physical and security needs of subordinates [35] and on the motivation of followers by granting either rewards for good performance or disciplinary measures for poor performance [28]. The main strength of transactional leadership is that followers are challenged through rewards, while its primary weakness is that it uses negative reinforcement [32]. With this approach, there can be exchanges in value without any mutual pursuit of higher-order purpose, and the result can be a workplace that is efficient and productive yet also somewhat limited when compared to a workplace under transformational leadership [44].

2.1.3. Laissez-Faire Leadership

Laissez-faire leadership is viewed as passive-avoidant leadership and is generally considered an ineffective leadership style in which leaders shirk their supervisory duties to their subordinates [23,42,45]. In essence, it is more of a representation for a lack

of leadership and the avoidance of clarification of expectations, conflict resolution, and decision-making [46,47]. In other words, as leaders continue to offer little support to their juniors and pay scant attention to production or to the accomplishment of responsibilities [48], they either choose not to intervene in the day-to-day functioning of subordinates or completely avoid their responsibilities as superiors, and are therefore unlikely to build any relationship with their subordinates [35]. The key factor that distinguishes laissez-faire leaders from other leaders is that they abrogate their leadership responsibilities by being absent [36]. In other words, leaders are not involved in the work of subordinates, and their involvement in decision-making within the organisation is minimal [35]. However, despite the careless behaviour of laissez-faire leaders, it can be suitable in a situation where employees are capable and motivated to make their own decisions that are in line with the goals of the organisation and where there is no condition for essential harmonisation [49].

2.2. Supply Chain Leadership

SCL contributes to the enhancement of functioning implementation, consumer–supplier relationships, and sustainability in innovation [26]. As contemporary businesses have become more sophisticated, Sukati, Hamid, Baharum, and Mdyusoff [50] assert that the development process in business has been characterised by product lifecycles that are shorter and more interconnected and interdependent, as well as by the introduction of varied products. SCL is therefore identified as a potentially significant concept due to its influence on sustainable innovation and competitiveness, but it is yet to emerge as a distinct field of scholarly research [25]. SCL requires an awareness of risk and unforeseen business challenges associated with sustainable innovation and competitiveness, as well as knowing how to deal with these challenges in a decisive manner. Naturally, top enterprises regard supply chains as barricades defending them against uncertainty, and they aggressively and consistently assess or even reconfigure their extensive supply systems to prepare for future economic changes [51]. Those companies tend to achieve advanced sustainable innovation and competitiveness both within and across the plan, source, manufacture, delivery, and return functions, but also in collaboration with sales and marketing and product management administrations in lines of business [52]. Grosspietch and Brinkhoff [53] argue that SCL is one of the most difficult yet also one of the most crucial factors for delivering and sustaining impact, and therefore success in the SCL discipline relies heavily on sustainable innovation and competitiveness that distinguish the world’s best management [54]. What differentiates these leaders from other leaders is that they seek to move through the organisation’s challenges [55]. In this way, SCL encompasses the entire value chain. Effective supply chain leaders consistently engage with key stakeholders in the business to drive sustainable innovation and enhance competitiveness.

2.3. Supply Chain Management

SCM is still considered a noteworthy and innovative field of research, as it stresses interactions among uncommon areas, mainly marketing, logistics, and production [56]. Many businesses make use of SCM to expand production [57] and gain a competitive advantage [58]. However, the SCM phenomenon is once again at a crossroads in the age of Industry 4.0 or 4IR with the rapid expansion of information-led technologies [58]. There is, therefore, a need for SCM to develop an adequate solution to mitigate these developments [56]. Successful companies are those which consistently improve their performance and successfully manage supply chain activities in the face of technological advancements, and they are therefore regarded as supply chain leaders. Mehrjerdi [59] asserts that leadership must fully comprehend SCM and the merit that it can bring to the company’s bottom line. Overall, companies classified as supply chain leaders constantly outperformed their non-supply chain leader fellows in areas such as accountancy-based costs and activities, as well as liquidity ratios [60]. Globally, these companies seek to explore SCM and SCL to improve revenue growth. Grosspietch and Brinkhoff [53] suggest that successful companies are aware that excellent SCM is a competitive advantage and

therefore adapt their businesses accordingly. As a result, SCM has been recognised by organisations as a necessary business function and, if correctly implemented, it may lead to a competitive advantage [61]. In addition, supply chains need to incorporate strategies that improve the organisations' ability to react to unstable fluctuations in marketplaces while also improving environmental instability, in terms of both degree and variability [62]. All companies must therefore develop supply chain approaches that are adaptable to the marketplace [55]. Ultimately, SCM has increasingly become a source for competitiveness as smarter supply chains are inclined to use their knowledge and advanced analytics to identify greater customer segments and tailor their offerings accordingly [63].

2.4. Sustainability in Innovation

The uncertainty of current business conditions combined with increased competitiveness has pushed companies to find fresh approaches of functioning [64]. Similarly, in an era of heightened competition, a company's biggest challenge is to determine how to break the status quo and achieve lasting dominance [65]. Business success is therefore dependent upon innovation and sustainability. Innovation is connected to creating an understanding amongst stakeholders within an organisation and ensuring better communication between different [66]. It is companies' capacity for innovation that leads to change in the environment, solutions to challenges, and necessary actions [67]. Sustainable innovation must occur in order to achieve this important global agenda of transformation [68]. Sustainable innovation can therefore be defined as continuous performance improvement coupled with the implementation of new products, processes, or practices with a reduction of elements that are negative on the impact of the firm's activities [69–72].

The three phases of innovation include exploration, exploitation, and diffusion. Exploration relates to the development of new alternatives and therefore focuses on the ideal of pursuing knowledge more fervently than before [73]. Activities associated with exploratory innovations are often risky, as they generally require more financial investment [74] and are often radical innovations that aim to serve present and future customers [74]. Firms that focus on exploitation pursue less new knowledge in the present moment than in the past [73]. Exploitative innovations are incremental in character with a focus on the needs of existing consumers [74]. Generally, activities linked to exploitative innovations offer less risk and require little investment, which leads to new, adapted products [74]. To compete on a technological level, firms will need to balance their exploitative innovation portfolio with some exploratory activities, because failure to explore new technology entirely may result in out-of-date processes and products that ultimately do not meet client demand [74]. Lastly, diffusion represents the scale at which innovations are implemented by customers or consumers and come into common use [75]. Diffusion occurs when the system of users makes it possible for them to acquire knowledge about new technology and to share information and opinions among themselves as potential users through the available communication channels [76]. This process, as MacVaugh and Schiavone [76] assert, occurs progressively within one market. Furthermore, it occurs in systems that are complex in nature where networks connecting system members are overlapping, multiple, and complex [75].

Several investigations in innovation studies have confirmed significant connections between the innovation attempts and implementation of these innovation in companies. The two approaches to innovation, closed and open innovation, can be merged through the forming of appropriate plans in a market environment of exchange and connectedness [77]. Thus, while closed innovation is focused inside the company and it is the responsibility of the employees to attain the sufficient level of quality, open innovation, in contrast, leans towards bigger and more visionary innovation and is less task-oriented [77]. However, companies from developing economies ought to execute plans and make efforts that are strategically directed at open innovation to solve their innovation problems [78]. The effectiveness of open innovation is recognised in several industries and various types of enterprises, even though it is not always the most practical approach [79].

3. Research Methodology

3.1. Sample and Population

In 2015, there were 400 JSE-listed companies [80]. These were considered the target population ($N = 400$), and a purposive sample of the top 100 JSE-listed companies was selected ($n = 100$). The choice of the top 100 JSE-listed companies was influenced by their maximum stockholder gains throughout the preceding five years [81]. The 2015 South African standard industrial classification (SIC) system was used to classify the JSE's top 100 companies into six industries, as shown in Table 1, and the stratification into these industries was aimed at categorising the companies into relatively homogeneous sub-groups in accordance with the SIC relevant to the research, as well as to attain greater precision and representativeness of the sample. The sample was classified according to manufacturing: 9 (100×0.09); retail, wholesale trade, commercial agents, and allied services: 18 (100×0.18); mining, quarrying, and agriculture 8: (100×0.08); ICT, transport, logistics, and storage: 18 (100×0.18); finance and business services: 25 (100×0.25); and catering, accommodation, property, and hospitality: 22 (100×0.22). Table 1 provides the percentages of the sample composition.

Table 1. Sample composition.

Standard Industrial Classification	Percentage
Manufacturing	9%
Retail, wholesale trade, commercial agents, and allied services	18%
Mining, quarrying, and agriculture	8%
ICT, transport, logistics, and storage	18%
Finance and business services	25%
Catering, accommodation, property, and hospitality	22%
TOTAL	100%

Own compilation.

3.2. Data Collection

Due to its greater adaptability and geographical reach and low cost, an online questionnaire on the Survey Monkey platform was used to collect quantitative data from 46 JSE-listed companies [82]. The survey was stored on a server that was controlled by the researcher and the participants were asked to visit the website by clicking on an e-mail link. The questionnaire consisted of closed-ended questions that offered set response categories. Participants were prompted to specify the degree to which they agreed with or opposed statements on a five-point Likert scale, with possible responses ranging from “strongly agree” to “strongly disagree”.

3.3. Data Analysis

Quantitative data analysis through various methods was aimed at quantifying the differences between groups, changes over time, or the existence of a measurable phenomenon [83]. Descriptive analysis was applied to describe and summarise data on important factors for SCL (Figure 1, Section 4.1.1.) as well as the development of sustainable innovative ideas (Figure 2, Section 4.1.3.) to recognise some of the emerging patterns to create graphical summaries and to facilitate statistical comments for the discussion of the results. Table 2 (Section 4.1.2.) summary enabled statistical commentaries for treatment of the results on how competitiveness can be sought. The use of *t*-tests and ANOVA tests for non-parametric analyses through Mann-Whitney and Kruskal Wallis were informed by both dependent and independent variables. Factor analysis was applied to uncover the latent variables that underlie a set of items and then summarise the data in a manner that allows relationships and patterns to be easily interpreted and understood [84]. Inferential analysis was used on the sample of the top 100 JSE-listed companies to draw inferences.

3.4. Quality Assurance of the Study

A pilot study was conducted before finalising the questionnaire to ensure face validity, whereas content validity was ensured by asking colleagues within the field of SCM to review the constructs and evaluate the validity of the indicators. Further attention was paid to constructs such as characteristics, creativity, innovation, and motivation of SCL, and these were measured against previous studies and publications to ensure construct validity. In addition, to ensure criterion validity, the survey instrument was reviewed by experts in SCM, entrepreneurship, operations, and manufacturing strategy, and it was pre-tested on some managers to gain clarity. Furthermore, a solid documentation of the research process was put in place while using standardisation in the survey to ensure reliability in the study.

3.5. Ethical Considerations

Prospective research participants were informed about the procedures and risks involved in the research and could give their consent to participate. Participation in the study was therefore on a voluntary basis, and both physical and psychological harm were avoided at all costs. Ethical clearance was obtained from the University of South Africa's Ethics Committee in accordance with policy [85]. In addition, participants were informed and assured of the privacy and confidentiality of their participation in the study. Thus, no person or company apart from the researcher had access to the completed questionnaires.

4. Results

4.1. Descriptive and Factor Analysis

4.1.1. Supply Chain Leadership

For this study, SCL is defined as the acute level of the company to accelerate operational performance through sustainable innovation and competitiveness through proactive management activities and an awareness of supply chain risks, as well as preparedness for unforeseen challenges for a secured market for goods and services. Participants answered the following question: Please indicate the extent to which the following factors are important in SCL for sustainable innovation and competitiveness to your company. Figure 1 below illustrates how the different factors that are deemed important in SCL for sustainable innovation and competitiveness were ranked by the participants. On average, increased profitability ranks the highest and increased capacity for decision-making the lowest. It should, however, be noted that on average all factors are important as illustrated by the average scale scores of four or higher for each factor.



Figure 1. Important factors for SCL. Source: Own from data analysis.

4.1.2. Degree of Competitiveness

Competitiveness implies the constant remodelling of businesses and the environment as part of tactical and long-term planning objectives [86], and various approaches can be used to achieve competitiveness. Participants answered the following related question: Please indicate the extent of your agreement with the following statements on how competitiveness can be obtained by your company.

The results show the ranking of various approaches for the top 100 JSE-listed companies to seek competitiveness. The approaches that were agreed upon to obtain competitiveness are production planning for clients, inventory decisions for suppliers, and sharing of information (Table 2). However, participants generally disagreed with the approach of subcontracting a portion of the overall production to outside firms, which suggests that JSE-listed companies prefer to increase the capacity for production processes from within.

Table 2. Degree of competitiveness.

Statement	Disagree	Somewhat Agree	Agree	Total
Competitiveness is sought by sharing information	3 18%	5 29%	9 53%	17 100%
Competitiveness is sought by inventory decisions for suppliers	5 29%	3 18%	9 53%	17 100%
Competitiveness is sought by production planning for clients	1 6%	6 38%	9 56%	16 100%
Competitiveness is sought by subcontracting a portion of the overall production to outside firms	8 50%	4 25%	4 25%	16 100%

Source: Own from data analysis.

4.1.3. Sustainable Innovation

In this study, innovation denotes a company's ability to use products or services to provide meaningful solutions to both individual and operational problems for competitive advantage. Sustainability, in this context, points to the maintenance as well as the application of innovation activities on a continuous basis. Participants answered the following question: To what extent do the following factors affect the development of sustainable innovative ideas in your company? Factors that participants indicated as strongly affecting the development of sustainable innovative ideas are top management support, closer links between demand/supply, integrated information systems (e.g., EDI), trust among staff members, free flow of information, and creating a standardisation process. Factors that participants indicated as affecting the development of sustainable innovation less strongly include more frequent meetings, joint business planning, simplifying the whole production process, simplifying the operation process, and the mutual interest of employees. As can be seen from Figure 2, closer links between demand/supply as well as integrated information systems affect the development of sustainable innovative ideas to the highest extent, while research and development and simplifying the whole production process do so to the least extent.

4.2. Inferential Analysis

Both dependent (sustainable innovation and competitiveness) and independent (SCL) variables informed the use of *t*-tests, as well as ANOVA tests for non-parametric analyses in the form of Mann–Whitney and Kruskal Wallis tests as ANOVA tests. Therefore, through inferential statistical analysis, the inferences regarding the top 100 JSE-listed companies were made through the estimation of parameters as well as the testing of the hypotheses for SCL.

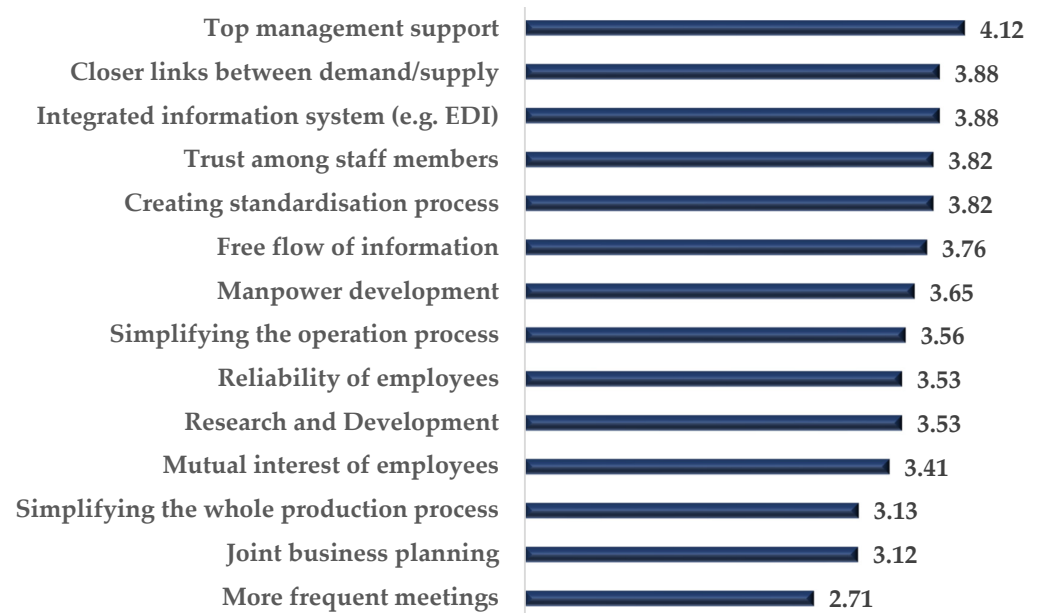


Figure 2. Development of sustainable innovative ideas. Source: Own from data analysis.

Research Hypothesis 1. *Subjective opinions on SCL in a developing economy will highlight sustainable innovation and competitiveness as necessary activities for JSE-listed companies.*

The discussion regarding this hypothesis is centred on the subjective opinions of managers and experts in the field of SCL on the basis that sustainable innovation and competitiveness are necessary activities for JSE-listed companies. To determine whether the company's position on SCL influences the extent to which the different functions are perceived, the non-parametric Mann–Whitney U test was used. Table 3 provides test statistics that illustrate the extent to which the participants consider functions of efficiency (inventory, transportation, lead time, purchasing, and production) to affect SCL. It appears that there is no significant effect on the extent to which the different functions of SCM are perceived by the participants to influence the efficiency of companies in consolidating their SCL positions. The results indicate that sustainable innovation and competitiveness are necessary for SCL position in the company. The functions of efficiency include inventory management, transportation, lead time, purchasing, and production planning as independent functions that not dictated by how well the company is positioned for effective SCL.

Table 3. Functions of efficiency in SCL ^a.

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Exact Sig. [2 × (1-tailed Sig.)]
Inventory	28.000	49.000	−0.526	0.599	0.660 ^b
Transportation	28.500	49.500	−0.492	0.623	0.660 ^b
Lead time	26.500	92.500	−0.695	0.487	0.525 ^b
Purchasing	23.000	89.000	−1.130	0.259	0.350 ^b
Production planning	22.500	37.500	−0.598	0.550	0.583 ^b

^a. Grouping variable: How well the company is positioned for effective SCL. ^b. Not corrected for ties. Source: Own from data analysis.

Research Hypothesis 2. *Training and development will allow for proper implementation of SCL for sustainable innovation and competitiveness within a JSE-listed company.*

The discussion regarding this hypothesis is centred on the understanding that trained employees can implement sustainable innovation with ease and become agents for competitiveness for the company. To determine whether the company's potential for effective SCL influences its development of sustainable innovation and competitiveness, the non-parametric Mann–Whitney U test was applied. The factors that play a role in the development of sustainable innovation and competitiveness for SCL include the reliability of employees, top management support, trust among staff members, mutual interest of employees, manpower development, closer links between demand and supply, joint business planning, and creating a standardisation process. All of these factors for the development of sustainable innovative ideas and the associated test statistics reflected in Table 4 are vital to train employees in the proper implementation of sustainable innovation and acceleration for competitiveness within the company. However, the company's potential for effective SCL does not have a significant effect on the extent to which the participants perceived the different factors that affect the development of new innovative ideas regarding SCL in the company.

Table 4. Factor for the development of sustainable innovative ideas ^a.

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Exact Sig. [2 × (1-tailed Sig.)]
Reliability of employees	21.000	87.000	−1.265	0.206	0.256 ^b
Trust among staff members	23.500	89.500	−1.019	0.308	0.350 ^b
Manpower development	20.000	86.000	−1.362	0.173	0.216 ^b
Closer link between demand/supply	29.500	95.500	−0.377	0.706	0.733 ^b
Integrated information system (e.g., EDI)	31.500	52.500	−0.162	0.872	0.884 ^b
Joint business planning	29.500	50.500	−0.365	0.715	0.733 ^b
Creating standardisation process	18.000	84.000	−1.614	0.107	0.149 ^b

^a. Grouping variable: How well the company is positioned for effective SCL. ^b. Not corrected for ties. Source: Own from data analysis.

5. Discussions

The research question asked what SCL strategic actions should be undertaken by companies that are operating in developing economies regarding sustainable innovation and competitiveness. In general, companies must strengthen their capabilities for SCL, irrespective of their circumstances, and must continually seek to achieve sustainable innovation and competitiveness. Top supply chain companies need to apply appropriate forms (product, service, or process) and types (incremental, modular, architectural, or radical) of innovation to be competitive in the market. Such companies are usually determined to implement supply chains with the greatest level of agility while considering the general management of supply chain operations as a major factor for their level of competitiveness [87]. Competitiveness includes the production of correct products of quality within the desired period and to customers that are in need of the products. In addition, training of employees will ensure that the correct form and type of innovation is chosen to maximise customer satisfaction. In other words, to achieve sustainable innovation and competitiveness capabilities for the company, the training and development of employees should be prioritised within a company for SCL.

Undeniably, supply chains have increased greatly in complexity in many circumstances and settings, with an increasing perception that the basic structures of SCM may need reassessing in the light of changes in the global business environment [18]. Therefore, due to factors such as globalisation, training and development for sustainable innovation and competitiveness is crucial in narrowing the gap between developing economies and developed economies. In addition, companies use innovation to develop new values through

solutions that meet new conditions and existing needs in a better way [20]. Generally, the best supply chain companies in a developing economy are flexible in their SCM activities, have a strategic vision, and apply tactical approaches while benchmarking on long-term planning for sustainable innovation and competitiveness.

6. Significance of the Study

The findings of the study are intended to resonate with companies operating in a developing economic environment. Intrinsically, the data-collection instruments for the concepts have been created, validated, and tested for reliability within an emerging economy context. The study therefore contributes to the field of SCL, particularly within the context of developing countries. Furthermore, the study, which focused on the top 100 JSE-listed companies, was situated within a South African setting. This is an issue of great significance to the discipline of SCM, because it is deemed necessary for firms that strive for SCL to enhance their activities in terms of sustainable innovation and competitiveness. This study sought to deal with inadequacies regarding the definition of SCL and therefore a proposed definition was developed in conjunction with a review of the literature for further clarification of related aspects in the field of SCM. The clarified definition of SCL should benefit the discipline of SCM by describing the concept in a precise manner and elevating its importance by placing it in the context of workable theory.

7. Conclusions and Recommendations

The primary purpose of this study was to identify the SCL strategic actions to be undertaken by companies in a developing economy regarding sustainable innovation and competitiveness. The value of SCL for sustainable innovation and competitiveness in a developing economy cannot be underestimated. Indeed, given 4IR, there is a renewed energy in the field that focuses on sustainable innovation and competitiveness. Due to ongoing changes in the world regarding technology, regulations, and politics, developing economies need to be better equipped to handle these challenges. JSE-listed companies, as well as the South African economy and other developing economies, are challenged to perform against their developed counterparts. In this context, the fundamentals of sustainable innovation and competitiveness are necessary to develop seamless supply chains both individually and jointly. The aspects addressed in this study provide a clear foundation for this renewed drive that could form the foundation for SCL in the challenges of developing economies. It is concluded that, in order for supply chains to be understood in relation to JSE-listed companies and in the context of developing economies, all important factors for SCL stated in Figure 1 ought to be implemented and managed: increased profitability, improved customer satisfaction, improved quality assurance, cost reduction within organisation, reducing bureaucracy or paperwork, improved product management, increased revenue growth, increased market competitiveness and increased capacity for decision-making. Also, the issue of sustainability remains a key aspect of companies' quest to remain relevant and competitive in the long term through production planning for clients, inventory decisions for suppliers, and sharing of information. Thus, sustainable innovation and competitiveness can drive the overall strategic operations of companies towards SCL in developing economies. Companies should therefore embrace innovation in the provision of products and services and must consider the contribution of sustainable innovation competitiveness towards SCL. Furthermore, it is critical that companies decide on the type of SCL strategic actions to implement. Due to limited resources and capacity, it is recommended that companies embark only on strategic actions that have a direct link with SCM while ensuring that peripheral strategic actions are replaced. This will enable these companies to focus on what they do best and avoid the ineffective utilisation of resources. In instances where strategic actions are not clear, perhaps companies need to start by determining or establishing effective strategic actions before contemplating the competitive journey of SCL.

8. Limitations of the Research and Recommendations for Future Research

Amongst the limits encountered during the study was the inadequate existing research that focuses on SCL within the context of a developing economy. As such, the access to information was heavily dependent on the top 100 JSE-listed companies in South Africa. Additionally, there was reluctance to participate by relevant functional managers or directors because of company bureaucracy that required permission from top management in order to participate. Furthermore, a limitation regarding the self-reported data was due to the use of Survey Monkey to distribute the questionnaire, as participants completed the questionnaire in their own time and space. There was therefore little control over participants' information and participation. In other words, the information that participants provided as fact was difficult to verify.

South Africa was chosen as the research setting, but there are many other emerging economies in the world, and it would be useful if future studies were able to include other economies. Similarly, the study was limited to the top 100 JSE-listed companies, and future studies can expand their scope to include a larger sample. There is also the potential for future comparative studies between developing and developed economies to contrast the results. In such a comparison, it would be interesting to establish the similarities as well as the differences between the two types of economies. Finally, an opportunity exists for future longitudinal studies that take the outcomes of the present study a step further to determine how SCL could be improved upon.

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