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Enhancing SMEs Performance: The Impact of Supply Chain Strategy, Marketing Orientation, and Sustainable Entrepreneurial Orientation

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Abstract
In contemporary times, sustainable entrepreneurial orientation and market orientation are essential determinants for organizations to thrive in competitive environments. This research seeks to examine the impacts of sustainable entrepreneurial orientation and market orientation on the performance of small and medium-sized enterprises (SMEs) within the pharmaceutical industries, utilizing a supply chain strategy framework. To achieve this objective, four hypotheses were formulated. A researcher-designed questionnaire comprising 34 items was employed to test these hypotheses, and it was distributed among 110 managers in the pharmaceutical industry. The quantitative data were analyzed using SPSS 27.0 and AMOS 26.0. The findings revealed that market orientation significantly enhances the organizational performance of pharmaceutical companies. Furthermore, sustainable entrepreneurial orientation is pivotal in improving organizational performance outcomes. Sustainable entrepreneurial orientation significantly contributes to augmenting supply chain collaboration, and subsequently, organizational performance is instrumental in further enhancing supply chain (SC) collaboration.

Keywords: Sustainable entrepreneurial orientation, Marketing orientation, Performance of SMEs, Supply chain strategy

1. Introduction

For an extended period, marketing theorists and researchers have strived to comprehend the nature and process of formulating and designing SC strategies within the marketing context and at the business level (Criado-Gomis et al., 2018). It is essential for companies that hold significant positions in today's competitive markets to understand the principles, competitive advantages, and methodologies for implementing new strategies to ensure their impact on others and their flexibility (Farsi et al., 2013). The main aim of marketing strategies is to allocate resources appropriately and balance marketing activities to achieve organizational goals (Fernandes et al., 2006).
In the context of today's rapidly evolving markets, reliance on traditional information can result in missed opportunities. Organizations that possess greater knowledge of their performance and market conditions tend to achieve higher success; therefore, information serves as both an asset and a tool for marketing (Hacioglu et al., 2012). Marketing, particularly market orientation, is critical for any business. Empirical studies suggest that market orientation and entrepreneurial orientation are key determinants of a company's success (Hills & Hultman, 2011; Jones & Rowley, 2011). Despite rapid market changes, organizations engage in substantial entrepreneurial activities to gain competitive advantages in dynamic environments (Farsi et al., 2013). According to Keh et al. (2007), companies

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aiming for successful corporate entrepreneurship must adopt an entrepreneurial orientation. This orientation involves selecting strategies that businesses use to identify and guide new ventures, indicating that performance results from the implementation, completion, and integration of current organizational capabilities (Criado-Gomis et al., 2018). Hence, entrepreneurial orientation is recommended to better respond to current demands and uncertainties. It combines flexibility with the ability to recognize and utilize new opportunities, resulting in success in environmental contexts, economic, and social domains (Brettel et al., 2013).

Empirical research demonstrates that small and medium-sized enterprises (SMEs) confront a myriad of obstacles in their efforts to compete within the global marketplace. Saleh and Ndubisi (2006) identified that SMEs face significant difficulties in a globalized environment due to limited financial resources, low productivity, inadequate managerial skills and limited access to cutting-edge management techniques and technology. Moreover, the contribution of SMEs to overall value addition remains minimal, constrained by technology adoption barriers, lack of skilled labor, limited production capacity, and challenges in market growth. The prevalent failure of small businesses is primarily connected to deficient financial and marketing management (Salleh & Ibrahim, 2013; McCartan-Quinn & Carson, 2003). Owners or managers of SMEs must be actively involved in daily operations as they lack the necessary managerial expertise compared to larger organizations (Salleh & Ibrahim, 2013).

Resource limitations play a crucial role and significantly impact the performance of SMEs. Effective SC management, which involves coordination among all participants from suppliers to manufacturers and customers, is complex and extensive (Ab Talib et al., 2015).

This approach, when implemented alongside SC management, aims to foster collaboration and gain a competitive edge in the market. (Al-Aomar & Hussain, 2018). Attaining competitive edge necessitates collaboration through varied initiatives in business strategy and the implementation of specialized software (Apricio et al., 2017).

This research aims to investigate the effects of market orientation and sustainable entrepreneurial orientation on the performance of SMEs in the pharmaceutical indystries based on SC strategy. Consequently, a company's performance is expected to improve with sustained market presence, influence, and market share, ultimately ensuring the company's longevity and enhancing SC collaboration.

2. Literature Review and Hypothesis Development

2.1. SC Strategy and Collaboration

Karimi et al. (2022) contend that a significant relationship exists between strategic SC management and the performance of SCs. SMEs often encounter a strategic dilemma when deciding whether to collaborate with larger companies, a scenario not fully elucidated by the Resource-Based View (RBV) (Rezaei et al., 2015; Jones et al., 2014). Ariff et al. (2023) illustrate that SC collaboration significantly enhances SME performance. Engaging in SCs offers access to markets, distinctive educational experiences, enhanced trademark credibility, and improved efficiency through capability adjustments. Collaboration, viewed as a dynamic capability, emerges from a well-constructed approach; for instance, product

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advancement requires collaboration and alignment throughout the SC (Lee & Kuo, 2016). Therefore, SMEs must maintain an explicit strategy focus on quality of product.

In the food industries, innovation and new product development offer strategic avenues for SMEs to attain competitive advantages (Ngamkroeckjoti, 2005). Avermaete et al. (2003) highlight the ongoing necessity for SMEs in the food industry to introduce new products, develop innovative processes, navigate organizational changes, and explore emerging markets. Developing products that align with market demands and integrating technology into production processes present significant challenges for food manufacturers. Furthermore, SMEs that engage partnerships are more likely to drive innovation, expand, and participate in global markets compared to those adhering to a "traditional-isolated" technique (Piperopoulos & Scase, 2007). Retailers regularly turn to small-scale producers for superior, creative food products. (Vlachos, 2015). Based on the Resource-Based View (RBV), SMEs that align their strategies with SC collaboration are expected to experience a substantial impact on their performance.

Conversely, SMEs that modify their organizational framework and functions to align with the directives and priorities of their SC collaborators may occasionally be forced to undertake roles beyond their fundamental strengths and strategic range. (Leithold, 2016). Dania et al. (2018) argues that participants in the pharmaceutical SC should align their business approach with the prerequisites of collaborative partnerships, as recommended by the Resource-Based View (RBV). Empirical data indicates that SMEs with weaker negotiating leverage frequently yield to their partners, which can conflict with their strategic orientations (Hsu, 2016). Based on RBV, firms should enhance strategies to maximize value generation and retention, with the success of SME strategies often contingent on the terms of collaboration set by more influential partners. Thus, while SMEs generate value from their resources, they must organize these resources to benefit their partners, indicating that the value they obtain relies on their partnerships.

Sustainability exemplifies this dynamic. Aschemann-Witzel et al. (2017) note that companies can improve the sustainability of pharmaceutical SCs through strategic planning. Pharmaceutical SMEs can realign their assets and competencies to respond to SC dynamics by adopting sustainable practices (Beske, 2014). Sustainability plays a crucial role in accessing specific markets and offers SMEs opportunities to develop sustainability strategies and adapt their capabilities through leveraging the assets of their SC partners (Narula, 2004). However, empirical findings concerning the synchronization of SME strategies with SC alliances and their effects on business performance remain sparse (Towers & Burnes, 2008; Hudson et al., 2001; Luo et al., 2018).

2.2. Performance of SMEs and Market Orientation

In environments where larger corporations typically achieve expected capabilities through global efforts over recent decades, SMEs systematically lack access to the information, skills, talents, financial resources, and human capital needed to implement ideal improvements within economic enterprises (Amegbe et al., 2017). Ani et al. (2023) underscored the significance of acquiring marketing knowledge in enhancing SME performance. Consequently, it is commonly observed that when SMEs endeavor to effect changes, the methods employed seldom align with the explicit

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identification of superior attributes in construction trends or items in use. Therefore, SMEs often have constrained perspectives on their future development paths and generally manage environmental issues through specific management methods (Amegbe et al., 2017).

Azzone (1994), through research on small Italian economic enterprises, discovered abrupt changes in company assets. The absence of financial assets in companies postpones their environmental activities, limits their ability to adapt to external updates, and the absence of a formal unit directs attention towards ecological issues. Lee (2008) demonstrated that in an adaptive path, South Korean businesses distinguish ongoing development in managing green (environmental) practices: SMEs have adopted a competitive approach rather than control and command methods to address market challenges through green management. SMEs, particularly those with an environmental or green orientation, possess the necessary attributes to "initiate economic development by leveraging emerging green business opportunities."

Therefore, we hypothesize:

Hypothesis 1: Market orientation significantly and positively influences the enhancement of SME performance.

2.3. Performance of SMEs and Sustainable Entrepreneurial Orientation

The concept of entrepreneurial orientation was initially described by Miller & Friesen (1983) and Miller (1983), and has since been widely adopted and expanded upon by researchers across various countries, industries, and cultural contexts. For instance, Lumpkin & Dess (1996) conceptualized entrepreneurial orientation in the course of a method of operation, and a decision-making process that facilitates opportunities for market entry. Successful market entry requires a clear strategic perspective (Van de Ven & Poole, 1995), and such success is contingent upon the presence of certain active factors (Lumpkin & Dess, 1996). Lumpkin & Dess (1996) recognized five aspects of sustainable entrepreneurial orientation— competitive aggressiveness, proactiveness, risk-taking, autonomy, and innovativeness—that collectively and independently delineate the scope of sustainable entrepreneurial orientation (Covin & Wales, 2012).

Conversely, Knight (1997) outlines sustainable entrepreneurial orientation as a company's tendency to participate in risk-taking, proactive, and innovative behaviors to achieve strategic and operational objectives. Despite ongoing scholarly debates regarding the multidimensional nature of sustainable entrepreneurial orientation, some scholars argue that it represents a single-dimensional develop (Knight, 2000; Covin & Wales, 2012; Covin & Slevin, 1989). Others argue that sustainable entrepreneurial orientation is a multifaceted framework where dimensions such as autonomy, competitive aggressiveness, proactiveness, innovativeness, and risk-taking are distinct action-oriented components (Lumpkin & Dess, 1996).

Afum et al. (2023) demonstrated significant impacts of sustainable entrepreneurial orientation on all dimensions of sustainable performance—environmental, financial, and social. The perspectives on sustainable entrepreneurial orientation as either unidimensional or multidimensional offer different structural frameworks instead of competing interpretations of the same constructs (Covin & Wales, 2012; Covin & Miller, 2014).

While all aspects of sustainable entrepreneurial orientation are interconnected, the autonomy dimension operates individually (Larsen &

Korneliussen, 2012; George & Marino, 2011), influenced by environmental, organizational, and cultural factors during market entry (Zhao et al., 2011; Rauch et al., 2009; Knight, 1997). Cultural differences, as emphasized by Kemelgor (2002), contribute to distinct characteristics of sustainable entrepreneurial orientation, with significant variations in intensity observed between American and Dutch firms. Additionally, numerous studies have examined sustainable entrepreneurial orientation through the lenses of proactiveness, risk-taking, and innovativeness (Wiklund & Shepherd, 2005; Li et al., 2008; Kreiser et al., 2013; George & Marino, 2011).

In accordance with these explanations, sustainable entrepreneurial orientation denotes organizational processes that prioritize innovation to capitalize on market opportunities, the willingness to experiment with new services, products, and uncertain markets, and more dynamic responses compared to challengers in pursuit of new market opportunities (Zahra & Covin, 1995; Wiklund & Shepherd, 2005; Lumpkin & Dess, 1996). As a result, sustainable entrepreneurial orientation is classified as a fundamental organizational process contributing to company survival and enhancing organizational output (Tajeddini et al., 2006; Miller, 1983; Khalili et al., 2013).

Hypothesis 2: Sustainable entrepreneurial orientation positively and significantly impacts the enhancement of SME performance.

2.4. Sustainable Entrepreneurial Orientation and SC Collaboration

Research on SC management culture underscores the adoption of sustainable SC management practices (Cadden et al., 2013; Tummala et al., 2006) and sustainable SC methodologies (Gimenez & Tachizawa, 2012; Preuss, 2009). Companies with robust sustainability cultures are inclined to engage positively across all social dimensions of sustainable SCs. Advanced methodologies require firms and managers to be prepared and willing to cultivate strong partnerships with suppliers (Shub & Stonebaker, 2009; Gimenez & Tachizawa, 2012) to identify and capitalize on new SC opportunities and to adapt their SC operations accordingly. These conditions highlight managerial perspectives as active participants who influence their environment by leveraging social interactions for participation and influence.

Entrepreneurial orientation drives firms towards innovation, risk-taking, and the proactive pursuit of new opportunities (Dess & Lumpkin, 2005). It fosters firms' preparedness and willingness to adopt social methods in sustainable SC management, particularly those divergent from conventional methods. Thus, whereas a sustainability-oriented culture presents a foundational basis, combining it with entrepreneurial orientation enables firms to influence the social sustainability practices of other SC members and redefine strategies around social issues. Therefore, previous discussions reinforce the social methodologies of sustainable SCs through evaluating the dual impact of entrepreneurial orientation and sustainability culture.

Entrepreneurial orientation is an evaluative framework in strategic management (Child, 1972; 1997), defining a company's persistent inclination towards entrepreneurial activities (Covin & Lumpkin, 2011). This concept models patterns of action or decision-making approach applicable across organizations (Dess & Lumpkin, 2005). Entrepreneurial orientation encompasses various aspects and elements such as competitive aggressiveness; risk-taking; proactiveness,

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and a predisposition towards independent and autonomous action (Covin & Lumpkin, 2011; Miller, 1983). These aspects significantly shape firms' decision-making styles and organizational configurations, contributing to the firm's strategic positioning (Covin & Slevin, 2011).

A robust entrepreneurial mindset manifests in entrepreneurial behaviors (Covin & Lumpkin, 2011). It moderates the connection between sustainability culture and the acceptance of sustainable methods, driving transformative changes in SCs through innovations in product-market strategies, risky behaviors, and pioneering approaches (Miller, 1983). This argument suggests that entrepreneurial orientation moderates the effect of sustainability culture, prompting firms with powerful entrepreneurial orientations to embrace more venturesome and anticipatory social methodologies in sustainable SCs (Foerstl et al., 2010). These abilities in adaptation translate into competitive advantages for firms, making them attractive to customer firms that prioritize sustainability culture and entrepreneurial orientation when selecting suppliers.
Consequently:
Hypothesis 3: Sustainable entrepreneurial orientation significantly and positively influences enhanced SC collaboration.

2.5. Performance of SMEs and SC Collaboration

SC collaboration entails mutual participation where parties collaborate, divide resources, risks, information, and jointly make decisions to achieve greater profits rather than operating separately. SC practices such as risk-sharing create competitive advantages, collaborative decision-making processes, shared information, and increased profitability compared to independent operations. This maximizes the value derived from collaborations and effectively meets customer needs at reduced costs (Soosay & Hyland, 2015).

The profits of SC collaboration have been extensively studied (Kwon & Suh, 2004). However, research has predominantly focused on vertical collaborations, leaving the advantages of horizontal collaborations (Danloup et al., 2015). Horizontal collaboration can be particularly advantageous for resource-constrained entities such as SMEs, allowing them to achieve economies of scale through bulk procurement, cost reduction initiatives (Bitici et al., 2007), international expansion opportunities (Lu & Beamish, 2004), and enhanced market positioning (Min & Dagnino, 2016). Nevertheless, there remains a lack of sufficient investigation on the effect of horizontal collaborations specifically on firm performance.
Contrary to the theoretical advantages, SC collaboration has not always translated into victorious outcomes in practice. Challenges involve deficient information sharing, non-cooperative behaviors among partners, and inefficiencies in contractual arrangements that fail to prevent opportunistic and self-serving actions (Ralston et al., 2017; Ramanathan & Gunasekaran, 2014). Large companies often wield significant power over smaller suppliers by imposing operational regulations that can be challenging for less influential firms to meet. Restricted power and resources imbalances compel smaller suppliers to get unfavorable conditions, particularly when larger companies restrict knowledge sharing to maintain their competitive advantage (Ralston et al., 2017). Moreover, external entities not involved in the SC collaboration may possess solutions, information, and resources that current partners require access to them (Ahuja, 2000).

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Peripheral effectuates on SC collaboration, particularly in industries like agriculture, have received limited attention (Dania et al., 2018). Behavioral aspects within collaborative sustainable SCs in the agri-food industries have been investigated through the lens of resource dependence theorization (Kottila & Ronni, 2008). Effective communication has been highlighted as a crucial prerequisite for successful collaboration within the organic food industries in Finland (Koh et al., 2007).

Studies examining SC practices in SMEs within the manufacturing industries in Turkey have demonstrated that strategic collaboration directly enhances operational efficiency (Tatoglu et al., 2016). Subsequent research comparing SMEs in Turkey and Bulgaria further confirmed the positive impact of collaboration on performance outcomes (Leon-Bravo et al., 2017).

In the context of food SCs, research has explored collaboration's role in enhancing sustainability, emphasizing the importance of partnering with main stakeholders undertaking for confirming safety and quality of products (Alonso et al., 2018). Studies focusing on very small and small factories have indicated that horizontal collaboration among producers contributes to improved product quality, acquisition of essential production knowledge, and the enhancement of strategic capabilities.

Therefore, we offer the subsequent hypothesis:

Hypothesis 4: The performance of SMEs significantly and positively affects SC collaboration.

3. Methodology

Since the aim of this paper is to determine the causal relationship between various variables including marketing orientation, sustainable entrepreneurial orientation, organizational performance, and SC collaboration, this study is functionally oriented. Descriptive data collected from the field are utilized. The methodology employed in this research is Structural Equation Modeling (SEM). Theoretical foundations and relevant literature were gathered through resources available in libraries and databases.

The statistical population for this study consisted of managers from pharmaceutical companies, with 110 senior managers recommended to researchers. Due to the limited statistical population (110 individuals), no sampling was required, and the entire population was surveyed. Therefore, 110 questionnaires were distributed as data collection tools. Out of the total 110 questionnaires distributed, 98 completed questionnaires were used for data analysis, resulting in a response rate of 89%, which is generalizable. Figure 1 illustrates the framework model of the research.

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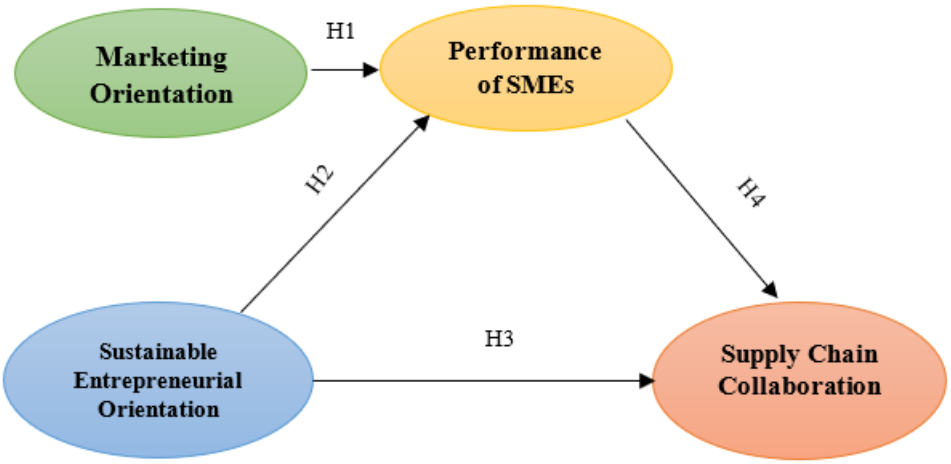

Figure 1: Framework model of the research

The study utilized Likert-scale questionnaires ranging from 1 (quite disagree) to 5 (quite agree) for collection of data (Krista & Christina, 2021). The initial objective of the instrument testing was to ensure that survey items accurately reflected the intended indicators through data analysis. Following data collection, the questionnaires were processed using SPSS 27.0 software, and both reliability and validity of the measurement tools had been previously assessed. The results obtained from 110 valid respondents yielded reliable outcomes, as summarized in Table 1.

The interview execution method involves direct response, and the results obtained were analyzed using multiple linear regression equations formulated by SPSS.

This revision maintains clarity, incorporates proper academic language, and ensures coherence in describing the methodology employed in the research study.

Table 1. Validity and Reliability Test

Variable	Marketing Orientation	Sustainable Entrepreneurial Orientation	Organizational Performance	SC Collaboration
Pearson Coefficient	0.902	0.926	0.919	0.932
Number of Repetitions	25	25	25	25
Cronbach's Alpha	0.904	0.914	0.907	0.912

Error Results obtained from SPSS 27.0

Explanation: Y2 = SC Collaboration, bi = Regression Coefficient

Equation: Y2 = a (constant) + b1X1 (Marketing Orientation) + b2X2 (Sustainable Entrepreneurial Orientation) + b3Y1 (Organizational Performance) +

This table presents the consequences of the validity and reliability analysis conducted

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that variables X1, X2, and Y1 significantly influence the adjusted R-Square value, which stands at 62.5%. These results suggest that market orientation (X1), sustainable entrepreneurial orientation (X2), and organizational performance (Y1) are pivotal for enhancing SC collaboration (Y2). The findings indicate a positive significance for each variable (X1, X2, Y1), suggesting they collectively contribute to a 62.6% increase in SC collaboration. The remaining 37.4% variance is attributed to other factors not included in the model of the current research.

using SPSS 27.0 software. It includes Pearson coefficients, the number of repetitions, and Cronbach's alpha values for each variable under consideration. The equation provided illustrates the regression model used to analyze the relationship between the variables, where Y2 represents SC Collaboration and bi denotes the regression coefficients for each predictor variable.

4. Research Findings

4.1. R-Square Analysis

An analysis of the data collected from 110 senior managers in pharmaceutical companies, as detailed in Table 1, reveals

Table 2. Regression Value of R-Square

Model	R	R-Square	Adjusted R-Square	Standard Error
1	0.713	0.699	0.626	0.324

The R-Square test results provide evidence that improved performance in marketing management, awareness of the significance of sustainable entrepreneurship, and an effective system all contribute to enhanced SC collaboration. Previous empirical studies suggest that SC collaboration is a strategy that manufacturing companies should employ to keep business income sustainability and stability.

4.2. T-Test for Marketing Orientation and Organizational Performance

Other tests, including t-tests or regression analyses, were conducted to investigate the communication between variables influencing the dependent variable (Christa et al., 2020). The data analysis aimed to test hypotheses and revealed that exogenous variables did not exert a substantial influence on the endogenous variables. However, significant and positive relationships were identified, confirming the hypotheses based on statistical criteria such as t-tests, significance levels, standardized beta coefficients, and F-tests (Shahzadi et al., 2018).

Table 3. T-Test Result

Model	B	Standard Error	Error	t	Significance
Constant	0.044	0.028	-	1.131	0.000
Marketing Orientation	0.770	0.074	0.515	3.176	0.000

Based on these findings, if the t-value exceeds the critical value from the t-table, the hypothesis is accepted, indicating a direct impact on the internal variable.

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Similarly, if the importance possibility is less than 0.05, the hypothesis is confirmed, demonstrating a considerable and positive impact of objective variables on internal variables .

The outcomes in Table 3 validate Hypothesis 1: the t-test value is 3.176, which exceeds the main value of 0.6757 from the t-table, and its importance is 0.00, which is less than 0.05. The standardized beta coefficient of 0.515 indicates that marketing orientation has a affirmative effect of 51.5% on organizational performance.

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4.3. T-Test for Sustainable Entrepreneurial Orientation and Organizational Performance

This study investigated the impact of sustainable entrepreneurial orientation on organizational performance within the existing marketing system, aiming to improve SC collaboration.

Companies utilizing a better sustainable entrepreneurial orientation are more capable of managing business models and are better prepared to respond to changing consumer demands

Table 4. T-Test Result

Model	B	Standard Error	Error	t	Significance
Constant	0.057	0.062	-	1.826	0.001
Sustainable Entrepreneurial Orientation	0.644	0.027	0.589	3.167	0.000

The results presented in Table 4 demonstrate a standardized beta coefficient of 0.589, indicating that sustainable entrepreneurial orientation has a significant and positive effect on enhancing SC collaboration by 58.9%. The findings confirm the support for Hypothesis 2, with a t-value of 3.167, which exceeds the main value of 0.6757 from the t-table, and a importance level of 0.00, which is less than 0.05.

These results suggest that pharmaceutical manufacturers can use sustainable entrepreneurial orientation as a strategic approach to consistently improve SC collaboration.

4.4. T-Test Analysis: Organizational Performance and Sustainable Entrepreneurial Orientation in Enhancing SC Collaboration

The t-test in the subsequent model encompasses Hypotheses 3 and 4, conducting a direct impact analysis for each variable. The objective of this test is to provide reference data for pharmaceutical companies regarding the extent and significance of the influence that exogenous variables have on endogenous variables.

Table 5. Partial Linear Regression Output

Model	B	Standard Error	Error	t	Significance

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Constant	0.016	0.022	-	1.131	0.003
Organizational Performance	0.437	0.033	0.403	2.244	0.000
Sustainable Entrepreneurial Orientation	0.343	0.063	0.317	2.716	0.001

The results indicate that both Hypotheses 3 and 4 demonstrate similar impacts on endogeneity, leading to enhanced SC collaboration. Table 5 shows that for Hypothesis 3, the variable for sustainable entrepreneurial orientation, with a t-value of 2.716 (≥0.6757) and a significance level of 0.001 (≤0.005), yields positive results. The standardized beta coefficient of 0.317 implies that sustainable entrepreneurial orientation enhances SC collaboration by 31.7%. This finding confirms that higher levels of sustainable entrepreneurial orientation correlate with increased SC collaboration.

Moreover, testing Hypothesis 4 reveals that the consequences in Table 5 indicate a t-value of 2.244 (≥0.6757) and a importance level of 0.000 (≤0.05). This denotes a positive impact of organizational performance on SC collaboration, with a standardized beta coefficient of 0.403, meaning that organizational performance significantly increases SC collaboration by 40.3%. Additionally, this study also conducted an F-test, which evaluates the extent to which the independent variable impacts the dependent variable within the ANOVA model.

4.5. F-Test (ANOVA)

In this research, an F-test was employed to assess i the variables of marketing orientation, sustainable entrepreneurial orientation, and organizational performance directly influence the enhancement of SC collaboration. In regression models, the F-test, also referred to as ANOVA (Analysis of Variance), determines whether the independent variables significantly impact the dependent variable .

The comparison between the calculated F-value and the F-table value indicates that if the calculated F-value exceeds the F-table value, it signifies a statistically significant effect on the variable of SC collaboration (Altinay et al., 2019). Performing the ANOVA test, along with thorough analyses, is essential for this purpose.

Table 6. Multiple Regression Output of the F-Test

Model	Sum of Squares	df	Mean Square	F	Significance
Regression	117.033	2	26.157	39.893	0.000
Residual	44.716	108	0.137	-	-
Total	161.749	110			

According to Table 6, the calculated F-value is 39.893, which exceeds the main value of 3.89 from the F-table, and the importance level is 0.000, which is less than 0.05. These consequences represent a statistically notable linear relationship between the independent variables—marketing orientation (X1), sustainable entrepreneurial orientation (X2), and organizational performance (Y1)—and the

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dependent variable, SC collaboration (Y2). The findings from this study, when tested using a model in AMOS (Analysis of Moment Structures), confirm that the loading coefficients effectively capture the relationships within a complex, multidimensional mediation model. The analysis depicted in Figure 2 represents the second phase of quantitative testing, illustrating that outside variables exert a direct, positive, and remarkable impact on internal variables, and can mediate with a positive effect on these internal variables.

Figure 2 illustrates the analysis using SPSS and AMOS 26.0 software. This study confirms that the AMOS analysis indicates that the relationship between the path for achieving business goals based on SC collaboration is crucial. It shows that organizational performance acts as a complete mediator, playing a significant role in enhancing SC collaboration. This finding suggests that pharmaceutical companies need a SC management system that aligns with business process management to effectively achieve SC collaboration in the pharmaceutical industry.

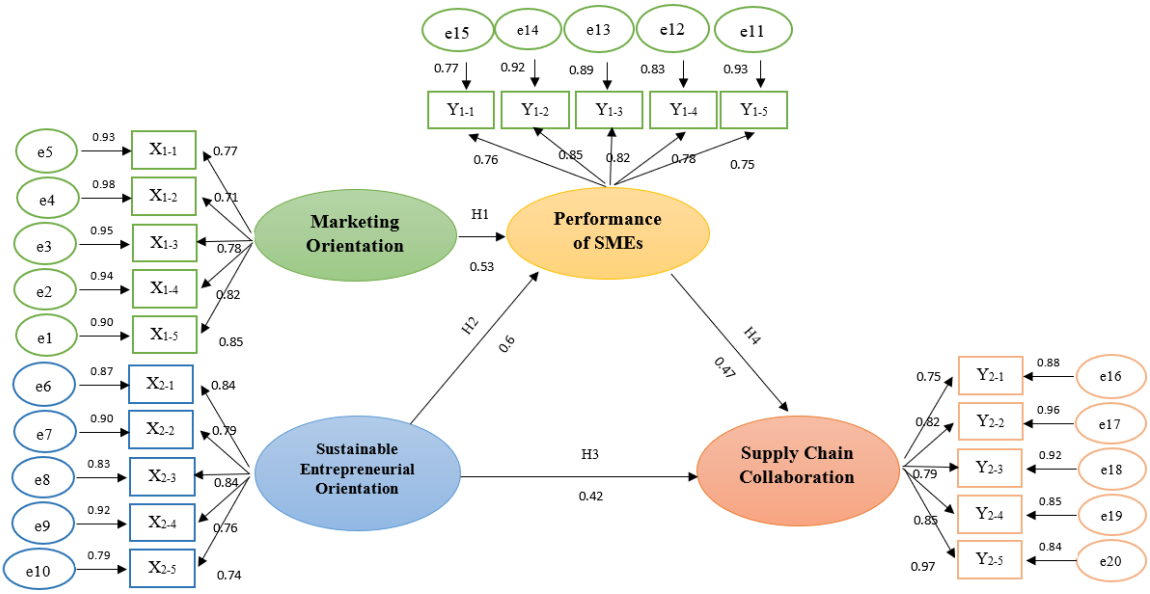

Figure 2: Results of the AMOS 26.0 Analysis

This figure indicates the consequences from the AMOS 26.0 software analysis, demonstrating the path model for achieving business objectives based on SC collaboration. The analysis confirms that organizational performance acts as a complete mediator, playing a significant role in enhancing SC collaboration. The findings indicate that effective SC management is crucial for pharmaceutical companies to align their business processes and achieve successful collaboration in the pharmaceutical industry.

5. Hypothesis Testing

This study focuses on a mediating variable to obtain interpretable and practical results as a reference for hypothesis testing. The analysis is conducted using AMOS 26.0 to continue the testing process (Christa et al., 2020; Arbuckle, 2016; Christa and Kristinae, 2021). AMOS provides several

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advantages, including the use of analytical tools to enhance results obtained from SPSS, validate the adequacy of complex models, and assess the impact of outside variables on internal variables. The consequences from AMOS typically include significant ratios, standardized estimates, and the probability of observing effects of outside variables on internal variables. These findings are often presented in graphical form (such as Figure 2) and summarized in tables (like Table 7).

In this context, Figure 2 likely illustrates a path model that visually represents how variables such as marketing orientation, sustainable entrepreneurial orientation, and organizational performance influence SC collaboration. Arrows in the figure indicate the direction and strength of these relationships, supported by standardized estimates that quantify the extent of impact each variable has on the others.

Table 7 would then summarize the detailed results, providing statistical information such as significant ratios (e.g., t-values or F-values), standardized estimates (beta coefficients), and the associated probabilities (p-values) that validate the positive impact of the hypotheses tested .

Overall, the findings confirm that all hypotheses—presumably related to the positive impact of marketing orientation, sustainable entrepreneurial orientation, and organizational performance on SC collaboration—are statistically significant. These variables are therefore identified as critical factors in enhancing SC collaboration according to the study's results.

Table 7. Hypothesis Testing Results

Hypothesis	Estimate	Standard Error	p (0.05)	Cr (1.96)	Standardized Estimate	Acceptability
H1	0.974	0.053	0.0	17.736	0.623	**Acceptable**
H2	0.995	0.0	0.0	19.768	0.715	**Acceptable**
H3	0.864	0.94	0.94	15.889	0.526	**Acceptable**
H4	0.816	0.91	0.91	13.210	0.315	**Acceptable**

Model Fit Statistics: Chi-square = 16.156 (acceptable model fit)
Significance: 0.517 (≥ 0.5, indicating an acceptable fit)

The consequences of this research reveal several significant findings in the context of the pharmaceutical manufacturing industry:

- Marketing Orientation (X1): The study indicates that marketing orientation significantly enhances organizational performance in pharmaceutical companies.
- Sustainable Entrepreneurial Orientation (X2): It is found that sustainable entrepreneurial orientation is crucial for improving organizational performance outcomes
- Hypothesis H3: Sustainable entrepreneurial orientation plays a significant role in increasing SC collaboration.
- Hypothesis H4: Organizational performance significantly contributes to enhancing SC collaboration.

The research model demonstrates a good fit with a chi-square value of 16.156,

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which is statistically expected to be very small, and an importance level of 0.517, which is greater than 0.5. These results suggest that the proposed hypotheses are supported by the data.

In practical terms, these findings serve as a valuable reference and resource for further development and enhancement of SC management systems within the pharmaceutical manufacturing industry. By focusing on improving marketing orientation, fostering sustainable entrepreneurial practices, and enhancing organizational performance, pharmaceutical companies can effectively increase collaboration within their SCs. This approach is crucial for achieving competitive advantages and improving overall operational efficiency in the industry.

6. Discussion and Conclusion

Based on SC strategy, companies that prioritize organizational performance tend to actively explore, create, analyze, and leverage entrepreneurial opportunities. These companies exhibit high levels of entrepreneurship, which in turn drives the development of innovative entrepreneurial marketing processes, especially beneficial for larger corporations .The study's findings suggest that in free and open markets, strategic entrepreneurial marketing can be effectively utilized to generate substantial value for both customers and business owners alike. This approach not only enhances market competitiveness but also fosters sustained growth and profitability by capitalizing on entrepreneurial initiatives and market opportunities.

Considering the existing study on the causal communication between entrepreneurial orientation, marketing orientation, and organizational performance, it can be concluded that companies and other institutions must improve their performance to achieve better positions in the competitive landscape.

The results demonstrate a significant and positive impact of market orientation on company performance. This conclusion is stable with the work of Fernandes et al. (2006). In dynamic markets, organizations need immediate information and active market communication to respond quickly and effectively to market needs, thereby improving performance. Market-oriented activities create sensitivity to market demands, which facilitates the swift collection of data and the immediate understanding of market needs.

The results also show a significant and positive impact of entrepreneurship on company performance. This finding aligns with Lumpkin and Dess (2001), but diverges from Kohli and Jaworski (1990). Entrepreneurial behavior among businesses and managers leads to the identification of opportunities for change and innovation, which can enhance the overall performance of companies that actively pursue entrepreneurial activities compared to their competitors.

This study's results indicate a significant and positive relationship between entrepreneurial orientation, SC strategy, and organizational performance. These findings are consistent with Kocak and Abimbola (2009). Companies that employ entrepreneurial orientation are better positioned to discover, create, analyze, and utilize entrepreneurial opportunities, thereby gaining competitive advantages.

The study also reveals that organizational performance can significantly contribute to SC collaboration. Strategic and entrepreneurial marketing can be effectively employed in open and free markets to provide greater value for customers and business owners. Additionally, the results suggest that small and newer companies use entrepreneurial marketing more extensively compared to older, established companies. New and emerging businesses can leverage entrepreneurial strategies as a growth factor, achieving better performance in their organizations through effective management.

In conclusion, this study highlights that entrepreneurial orientation and SC strategies have a substantial positive impact on organizational performance. The findings support the view that a focus on entrepreneurial marketing can enhance both performance and competitive advantage in the pharmaceutical industry and beyond.

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