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Abstract

Start-up manufacturing companies are vital drivers of industrial innovation and economic transformation, yet their long-term sustainability remains highly contingent on effective strategic planning practices. In Rwanda, many nascent manufacturing firms struggle with operational inefficiencies, resource constraints, and market volatility, underscoring the need for robust strategic frameworks. This study examined the effect of strategic planning dimensions specifically mission formulation, environmental scanning, strategic goal setting, and strategy formulation on the sustainability of selected start-up manufacturing companies in Kigali, Rwanda. A descriptive research design was employed, targeting a population of 187 registered start-up manufacturing firms employing 2–25 staff members. Using stratified proportional sampling, a sample of 127 firms was selected. Data were collected via a structured questionnaire that demonstrated high content validity (CVI = 0.967) and internal consistency (Cronbach's α = 0.756–0.952). Data analysis involved descriptive statistics, Pearson correlation, and multiple regression using SPSS version 27. Results revealed that strategic planning collectively explains 83.2% of the variance in sustainability ($R^2 = 0.832$, $F = 131.028$, $p < 0.001$). Mission formulation emerged as the strongest predictor ($\beta = 0.653$, $p < 0.000$), followed by environmental scanning ($\beta = 0.190$, $p = 0.002$) and strategic goal setting ($\beta = 0.094$, $p = 0.032$). Strategy formulation showed a positive but statistically insignificant effect ($\beta = 0.202$, $p = 0.076$), likely due to implementation bottlenecks. The study concludes that structured strategic planning significantly enhances sustainability in start-up manufacturing firms. It is recommended that firms institutionalize clear mission communication, invest in systematic environmental “scanning, align goals with operational resources, and strengthen strategy implementation mechanisms. Policymakers should facilitate capacity-building initiatives and market intelligence platforms to support strategic management among

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manufacturing start-ups. Future research should adopt longitudinal designs and incorporate moderating variables such as leadership style and technological innovation.

Keywords: *Strategic Planning, Sustainability, Start-up Manufacturing, Mission Formulation, Environmental Scanning, Goal Setting, Strategy Formulation, Rwanda.*

1.1 Background of the Study

At the global level, start-up manufacturing companies have become critical drivers of industrial innovation, job creation, and economic transformation, yet their sustainability remains highly dependent on the quality of strategic planning adopted. Evidence shows that firms operating in rapidly changing global markets must continuously align their strategic objectives with technological advancement, supply chain disruptions, and shifting consumer demands to remain competitive (World Bank, 2024; UNIDO, 2023). In addition, global industrial trends emphasize the importance of agile planning systems that allow manufacturing start-ups to respond to uncertainty while maintaining operational efficiency and long-term growth (OECD, 2023; McKinsey & Company, 2023). These dynamics highlight the central role of strategic planning in ensuring sustainability within the global manufacturing start-up ecosystem.

In the United States, start-up manufacturing firms operate within a highly advanced but competitive industrial environment characterized by automation, digital transformation, and strong innovation ecosystems. Strategic planning in this context is strongly influenced by technological integration and access to venture capital, which significantly enhances the sustainability of new manufacturing enterprises (Deloitte, 2024; U.S. Small Business Administration, 2023). However, despite these advantages, many start-ups still face challenges related to scalability, workforce specialization, and supply chain volatility, requiring robust strategic frameworks to ensure survival and long-term performance (McKinsey & Company, 2023; National Institute of Standards and Technology, 2024). This underscores the importance of structured planning processes in sustaining manufacturing start-ups in the U.S. context.

In China, start-up manufacturing companies benefit from strong state support, industrial clustering, and well-developed export-oriented policies that foster rapid industrial growth. Strategic planning in Chinese manufacturing start-ups is closely linked to national industrial policies such as “Made in China 2025,” which emphasizes innovation-driven development and technological upgrading (National Bureau of Statistics of China, 2024; World Bank, 2023). Despite these strengths, firms still face sustainability challenges arising from rising labor costs, environmental regulations, and global trade uncertainties, which require adaptive and forward-looking strategic planning approaches (UNIDO, 2022; Asian Development Bank, 2023). Consequently, strategic planning remains a core determinant of competitiveness and sustainability in China’s manufacturing start-up sector.

In Sub-Saharan Africa, start-up manufacturing companies operate in an environment characterized by infrastructural constraints, limited access to finance, and weak industrial bases, which significantly affect their sustainability. Strategic planning is increasingly recognized as a key mechanism for overcoming these challenges by enabling firms to optimize scarce resources and improve operational efficiency (African Development Bank, 2023; United Nations Economic Commission for Africa, 2022). However, many start-ups in the region struggle with

<https://doi.org/10.53819/81018102t2573>

implementation gaps, inconsistent policy environments, and limited technological adoption, which undermine long-term growth prospects (World Bank, 2023; UNIDO, 2023). These challenges highlight the critical need for strengthened strategic planning practices in Sub-Saharan Africa's manufacturing sector.

In South Africa, the manufacturing start-up sector is relatively more developed compared to other African economies, yet it continues to face structural constraints such as high production costs, energy shortages, and slow industrial growth. Strategic planning is therefore essential in enabling firms to navigate these challenges through diversification, innovation, and operational efficiency (Statistics South Africa, 2024; Department of Trade, Industry and Competition, 2023). Furthermore, empirical evidence suggests that manufacturing start-ups that adopt structured strategic frameworks are more likely to achieve resilience and sustainability in volatile economic conditions (PwC South Africa, 2024; World Bank, 2023). This demonstrates the importance of planning in strengthening the competitiveness of South African manufacturing enterprises.

In East Africa, the manufacturing sector has over the years had minimal contribution to Gross Domestic Product (GDP) and employment in the region (Akims, Akims & Pyoko, 2023). However, in Kenya, start-up manufacturing companies are increasingly contributing to the country's industrialization agenda under the "Big Four" development framework, which prioritizes manufacturing growth. Strategic planning in this sector is essential for improving productivity, enhancing value addition, and expanding market access both locally and regionally (Kenya National Bureau of Statistics, 2024; Ministry of Investments, Trade and Industry, 2023). However, challenges such as high input costs, limited access to affordable credit, and regulatory inefficiencies continue to constrain sustainability (World Bank, 2023; African Development Bank, 2023). As a result, effective strategic planning is widely regarded as a key driver of sustainable growth for Kenyan manufacturing start-ups.

In Rwanda, start-up manufacturing companies are increasingly supported by government policies aimed at promoting industrialization and private sector development under the National Strategy for Transformation (NST2). Strategic planning is considered essential for enhancing competitiveness, improving productivity, and ensuring sustainability in this emerging sector (Rwanda Development Board, 2023; Ministry of Trade and Industry, 2024). Despite these supportive frameworks, manufacturing start-ups still face challenges such as limited access to skilled labor, high production costs, and reliance on imported raw materials (National Institute of Statistics of Rwanda, 2024; World Bank, 2023). Therefore, strengthening strategic planning practices remains fundamental for ensuring the long-term sustainability of start-up manufacturing companies in Rwanda.

1.2 Statement of the Research Problem

Globally, start-up manufacturing firms face high failure and low sustainability rates, largely due to weak strategic planning and poor market adaptation. Evidence from enterprise development studies shows that approximately 70%–80% of small and medium manufacturing enterprises (SMEs) fail within the first five years of operation, mainly because they lack structured strategic planning, financial resilience, and competitive positioning (OECD, 2023; World Bank, 2024). In Sub-Saharan Africa, the situation is more severe, where firms exhibit very slow growth

<https://doi.org/10.53819/81018102t2573>

trajectories, with many surviving firms only doubling in size over decades, indicating weak scaling capacity and poor sustainability outcomes (Maemir & Rodriguez Meza, 2026; World Bank, 2026). In Rwanda, recent enterprise surveys show that over 60% of manufacturing firms operate below full capacity due to weak demand, input constraints, and limited strategic resource utilization, which directly undermines their long-term sustainability (National Institute of Statistics of Rwanda, 2024; Rwanda Development Board, 2023). These statistics collectively indicate that despite the establishment of start-up manufacturing firms, many remain unsustainable due to inadequate strategic planning systems that fail to support growth, competitiveness, and resilience in dynamic market environments.

Despite extensive research on firm performance and survival, several critical gaps remain in the literature on strategic planning and sustainability of manufacturing start-ups. First, most global studies focus on large or established firms, with limited attention to start-up manufacturing enterprises that operate under resource constraints (UNIDO, 2023; McKinsey & Company, 2023). Second, African-focused studies often emphasize general SME survival factors such as size, ownership, and productivity, without deeply examining strategic planning as a multidimensional construct influencing sustainability outcomes (Shiferaw, 2009; Harding, Söderbom, & Teal, 2004). Third, regional studies in East Africa, including Kenya and Uganda, mainly investigate external environmental factors such as policy frameworks and market access, rather than internal strategic planning processes that drive long-term competitiveness (Buyinza, 2011; World Bank, 2023). Fourth, in Rwanda, existing research largely concentrates on industrial policy and access to finance, with limited empirical analysis on how strategic planning practices specifically influence sustainability of manufacturing start-ups (Rwanda Development Board, 2023; National Institute of Statistics of Rwanda, 2024). Finally, most studies are cross-sectional and lack sector-specific focus on start-up manufacturing firms, creating a methodological gap in understanding dynamic strategic planning processes over time. These gaps justify the need for a focused study on strategic planning and sustainability of selected start-up manufacturing companies in Rwanda.

1.3 Objectives of the Study

- i. To determine the effect of mission formulation on the sustainability of selected start-up manufacturing companies in Rwanda.
- ii. To establish the effect of environmental scanning on the sustainability of selected start-up manufacturing companies in Rwanda.
- iii. To assess the effect of strategic goal setting on the sustainability of selected start-up manufacturing companies in Rwanda.
- iv. To determine the effect of strategy formulation on the sustainability of selected start-up manufacturing companies in Rwanda.

2.0 Literature Review

2.1 Empirical Review

2.1.1 Mission Formulation and Sustainability

In Australia, Zahan and Sultana (2019) conducted a study with the objective of examining how mission statements integrate sustainability principles and influence organizational sustainability performance. The study adopted a quantitative content analysis research method using a descriptive research design. A sample of 103 multinational firms drawn from the Dow Jones

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Sustainability Index (DJSI) was analyzed using secondary data from corporate websites. Data collection instruments included a structured coding sheet for mission statement components, while data were analyzed using descriptive statistics and content analysis techniques. The findings revealed that Australian and other developed-country firms strongly embed sustainability dimensions such as economic, social, and environmental within their mission statements, which enhances long-term strategic sustainability alignment and corporate legitimacy.

In the United Kingdom, Albrecht et al. (2021) examined the relationship between mission formulation and organizational sustainability performance in medium and large enterprises. The objective was to determine how mission clarity influences sustainability outcomes. The study used a mixed-methods approach combining qualitative interviews and quantitative survey data under a cross-sectional research design. A sample of 250 managers from UK-based manufacturing and service firms was used. Data were collected using structured questionnaires and semi-structured interview guides and analyzed using regression analysis and thematic coding. The findings showed that clearly formulated mission statements significantly improve sustainability performance by guiding resource allocation, stakeholder engagement, and long-term strategic direction.

In Saudi Arabia, Khan and Al-Farsi (2022) investigated the influence of mission statement formulation on sustainability practices in manufacturing firms. The study aimed to assess whether mission clarity and stakeholder inclusion enhance sustainability outcomes. A quantitative research method was employed using descriptive survey design. The study sampled 180 managers from industrial firms across Riyadh and Jeddah. Data were collected using structured questionnaires measured on a Likert scale and analyzed using correlation and multiple regression analysis. The findings indicated that firms with well-communicated mission statements were more likely to adopt sustainable production practices, reduce environmental impact, and improve organizational resilience.

In South Africa, Sandada (2020) studied the effect of mission and vision formulation on SME sustainability in Gauteng Province. The objective was to determine how strategic mission formulation affects business performance and long-term sustainability. The study adopted a quantitative research approach using a cross-sectional survey design. A sample of 77 SMEs out of a population of 187 state corporations and private firms was selected using stratified sampling. Data were collected using structured questionnaires and analyzed using descriptive statistics and regression analysis. The findings revealed that mission formulation positively influences sustainability through improved environmental scanning, stakeholder alignment, and strategic focus, although implementation gaps were observed in smaller enterprises.

In Kenya, Maina et al. (2023) examined the influence of strategy formulation, particularly mission and vision development, on the performance of state corporations. The objective was to assess how mission formulation affects organizational effectiveness and sustainability. The study used a descriptive survey research design with a quantitative approach. A sample of 77 managers from 187 state corporations was selected using simple random sampling. Data were collected using structured questionnaires and analyzed using descriptive and inferential statistics, including regression models. The study found that organizations with well-formulated missions had improved performance, better stakeholder alignment, and stronger sustainability outcomes, especially in service delivery and resource utilization.

2.1.2 Environmental Scanning and Sustainability

In the United States, Robinson, Ahmad, and Simmons (2021) conducted a study with the objective of examining how environmental scanning practices influence organizational sustainability and competitive advantage. The study adopted a systematic review research method using a qualitative research design. It synthesized findings from multiple empirical studies drawn from management and strategy databases, with no primary sample size since it was literature-based. Data collection involved secondary sources from peer-reviewed journals, while data analysis was conducted using thematic analysis. The study found that organizations with advanced environmental scanning systems particularly those integrating digital technologies were more likely to achieve sustainability through improved adaptability, strategic responsiveness, and early identification of environmental risks and opportunities.

In Switzerland, Luccioni, Baylor, and Duchêne (2020) examined environmental scanning within corporate sustainability reporting systems, aiming to assess how firms use data-driven scanning to enhance environmental sustainability performance. The study employed a quantitative research method under a descriptive and analytical research design. A sample of 150 multinational companies operating in Switzerland was used. Data were collected through sustainability reports, ESG disclosures, and structured content extraction tools. Data analysis was performed using natural language processing (NLP) techniques and regression analysis. The findings revealed that firms using advanced environmental scanning tools embedded in ESG reporting systems achieved higher environmental sustainability outcomes through better risk detection, emissions tracking, and climate responsiveness.

In India, Wang et al. (2024) investigated the role of environmental scanning capabilities in enhancing environmental sustainability performance in emerging manufacturing firms. The objective was to assess how scanning of external environmental factors such as policy, technology, and ecological risks influences sustainability outcomes. The study adopted a quantitative research method with a cross-sectional survey research design. A sample of 319 manufacturing and service firms was used. Data were collected using structured questionnaires measured on a Likert scale, while analysis was conducted using partial least squares structural equation modeling (PLS-SEM). The study found that firms with strong environmental scanning capabilities significantly improved their sustainability performance through better innovation, eco-efficiency, and compliance with environmental regulations.

In Botswana, Matome (2024) conducted a study with the objective of evaluating how environmental scanning through strategic environmental assessment supports sustainability planning. The study used a qualitative research method and a case study research design focusing on environmental practitioners and engineers. A sample of 45 stakeholders was selected using purposive sampling. Data were collected using semi-structured interviews and document reviews, while thematic analysis was used for data interpretation. The findings indicated that although environmental scanning mechanisms exist within planning systems, weak institutional coordination and limited stakeholder integration reduce their effectiveness in promoting sustainable environmental decision-making.

In Rwanda, Igihozo et al. (2022) carried out a study with the objective of assessing how environmental scanning contributes to sustainability in public health and environmental governance systems. The study adopted a qualitative rapid environmental scanning research

<https://doi.org/10.53819/81018102t2573>

method using a descriptive design. A sample of 132 documents, including policy papers, government reports, and media articles, was analyzed. Data collection involved documentary review, while thematic analysis was used for data interpretation. The findings revealed that Rwanda's integrated environmental scanning approach, particularly through the One Health framework, significantly enhances sustainability by strengthening early warning systems, improving multisectoral coordination, and supporting proactive environmental and health risk management.

2.1.3 Strategic Goal Setting and Sustainability

In Brazil, Palmer et al. (2020) conducted a study with the objective of examining how firms integrate sustainability goal setting into their strategic planning processes and how this influences sustainability outcomes. The study adopted a quantitative research method using a cross-sectional survey research design. A sample of 132 enterprises drawn from 335 Global Compact signatory firms operating in Brazil was used. Data were collected using structured online questionnaires targeting employees and managers responsible for sustainability reporting. Data analysis was conducted using descriptive statistics and regression analysis. The findings revealed that firms with clearly defined sustainability goals aligned with the Sustainable Development Goals (SDGs) demonstrated stronger environmental and social performance, indicating that strategic goal setting significantly enhances sustainability integration within corporate strategy.

In Sweden, Parisi (2013) examined the impact of organizational alignment and strategic performance measurement systems on sustainability outcomes, with a focus on how strategic goal setting influences environmental and social performance. The objective of the study was to assess whether alignment between sustainability goals and organizational systems improves sustainability effectiveness. The study used a quantitative research method and a survey-based research design. A sample of 405 large European firms, including Swedish organizations, was analyzed. Data were collected using structured questionnaires and secondary sustainability performance reports, while data analysis employed structural equation modeling (SEM). The study found that strategic goal alignment improves sustainability performance indirectly through organizational commitment and performance measurement systems, although the effect of alignment alone was found to be limited without strong implementation structures.

In China, Rafiq et al. (2020) conducted a study with the objective of investigating how strategic goal setting using the balanced scorecard framework enhances sustainability performance in organizations. The study adopted a quantitative research method using a positivist paradigm and descriptive survey design. A sample of firms from the Chinese industrial sector was included, though the focus was on cross-organizational performance measurement systems. Data were collected using structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicated that organizations that integrate strategic goal setting into performance management systems significantly improve sustainable development outcomes, particularly in resource efficiency, environmental compliance, and long-term profitability.

In Zambia, empirical evidence from Mushi (2024) examined the relationship between sustainability strategies, including strategic goal setting, and firm performance in manufacturing firms. The objective of the study was to determine how clearly defined sustainability goals influence organizational performance and environmental outcomes. The study used a quantitative

research approach and a descriptive cross-sectional design. A sample of 340 managers from ten manufacturing firms was used. Data were collected using structured questionnaires and analyzed using SMART PLS software for structural equation modeling. The study found that strategic goal setting has a strong positive influence on sustainability performance, particularly when supported by green innovation and organizational commitment, highlighting the importance of integrating environmental targets into corporate strategic planning.

In Tanzania, Mushi (2024) further investigated the moderating role of green innovation between sustainability strategies and firm performance, with strategic goal setting treated as a key component of sustainability strategy formulation. The objective was to assess how goal-driven sustainability strategies affect firm performance in manufacturing companies. The study adopted a quantitative research design using survey methods. A sample of 340 respondents from public and private manufacturing firms was used. Data were collected using structured questionnaires and analyzed using SMART PLS 4. The findings revealed that strategic goal setting significantly enhances firm performance, and its impact is strengthened when firms adopt green innovation practices, confirming that sustainability-oriented goals are essential for improving both environmental and economic performance.

2.1.4 Strategy Formulation and Sustainability

In Canada, Fuller (2022) conducted a study with the objective of examining how strategy formulation is embedded within CSR practices and how this influences organizational sustainability. The study adopted a quantitative longitudinal research method using a descriptive and evaluative research design. A sample of 47 large Canadian corporations was selected based on sustainability disclosure reports covering the period 2016–2020. Data were collected through structured content analysis of CSR and sustainability reports, while a coding framework was used as the data collection instrument. Data were analyzed using frequency distribution analysis and comparative trend analysis. The findings revealed that firms with strongly integrated strategic formulation processes demonstrated more consistent sustainability reporting and improved long-term environmental and social performance, while firms with weak integration showed stagnation in sustainability progress.

In Japan, Borland, Ambrosini, and Lindgreen (2016) conducted a study with the objective of exploring how strategy formulation processes integrate ecological sustainability into corporate decision-making systems. The study adopted a qualitative theory-building research method using systematic literature review and conceptual modeling design. The sample included 20 highly cited empirical and theoretical studies selected from international strategic management databases. Data were collected through document review of academic articles and sustainability frameworks, while thematic synthesis was used for analysis. The findings indicated that Japanese and global firms increasingly adopt dynamic capability-based strategy formulation approaches, which enhance sustainability by aligning environmental objectives with long-term competitive strategy and organizational learning processes.

In Cuba, Rodríguez and Hernández (2021) examined the influence of state-driven strategic formulation processes on sustainability outcomes in public manufacturing and agro-industrial enterprises. The objective of the study was to assess how centralized strategy formulation affects economic and environmental sustainability. The study used a qualitative case study research design. A sample of 18 state-owned enterprises was selected across Havana and Matanzas

provinces. Data were collected through semi-structured interviews with managers, government planning documents, and organizational reports. Data analysis was conducted using thematic content analysis. The findings revealed that while centralized strategic formulation ensured policy alignment and resource stability, it often limited innovation and adaptive sustainability practices at the enterprise level, thereby constraining long-term sustainability performance.

In Zimbabwe, Mashingaidze, Phiri, and Bomani (2021) conducted a study with the objective of examining how SMEs formulate strategies and how this affects sustainability and competitiveness. The study adopted a qualitative research method guided by interpretivism and used a case study research design. A sample of 15 manufacturing SME owners and managers in Harare was selected using purposive sampling. Data were collected through semi-structured interviews and analyzed using thematic analysis. The findings showed that although SMEs actively engage in strategy formulation, the process is often informal and unstructured, leading to weak sustainability outcomes. However, firms that combined internal resource-based planning with external environmental scanning demonstrated improved survival and growth prospects.

In Uganda, Lwanga, Korir, and Bonuke (2023) conducted a study with the objective of assessing how strategic formulation influenced by leadership values affects sustainability performance. The study adopted a quantitative research method using a cross-sectional survey research design. A sample of 256 managers from medium and large manufacturing firms was used. Data were collected using structured questionnaires and analyzed using multiple regression analysis. The findings revealed that firms with well-structured strategic formulation processes, supported by strong leadership values and organizational learning systems, achieved significantly higher sustainability performance in terms of environmental management, resource efficiency, and long-term profitability.

2.2 Theoretical Framework

This research was grounded in Stakeholder Theory, Contingency Theory, Goal-Setting Theory, and Resource-Based View (RBV) Theory, providing a foundation for understanding how strategic planning practices influence the sustainability of start-up manufacturing companies in Kigali, Rwanda. These theories guided the analysis of mission formulation, environmental scanning, strategic goal setting, and strategy formulation in relation to sustainability.

2.2.1 Stakeholders Theory

Introduced by Freeman (1984), stakeholders theory argues that organizations' long-term success depends on the ability to create value for all stakeholders, including employees, customers, suppliers, governments, communities and investors. In this study, the theory explains the relationship between mission formulation and sustainability suggesting that organizations that incorporate stakeholders' interests into their mission statement are more likely to build trust, legitimacy and collaborative relationships that support long term sustainability. The theory supports the view that mission formulation should be a participatory process that integrates stakeholders' expectations and organizational goals. This enhances stakeholders' support to the company and contributes to their sustainability.

Scholars such as Savage, Nix, Whitehead and Blair (2021) and Donaldson and Preston (2021) emphasized that recognizing stakeholders in mission formulation enhance organizational resilience and long-term viability.

However, the theory has limitations in resource-constrained and institutionally fragile environments such as Rwanda's start-up ecosystem. It assumes relatively equal stakeholder influence and often overlooks power imbalances, engagement costs, and contextual realities that affect mission formulation. Empirical studies by Uwimana and Murekezi (2023), Ndayisaba (2022), and Bizimana and Karuru (2024) reveal limited stakeholder participation in mission development among Rwandan manufacturing start-ups, resulting in misaligned objectives and weaker sustainability outcomes. Despite these challenges, Stakeholder Theory remains relevant because it provides a holistic framework for understanding how inclusive mission formulation strengthens stakeholder support, legitimacy, innovation, and sustainable performance. Consequently, the theory explains how stakeholder-informed mission statements can enhance sustainability among start-up manufacturing firms in Rwanda.

2.2.2 Contingency Theory

Advanced by Lawrence and Lorsch (1967), Fiedler (1967) and Donaldson (2021), the contingency theory argues that organizational success depends on the alignment between internal strategies and external environment conditions. In this study, the theory explains the relationship between environmental scanning and sustainability by suggesting that companies that continuously monitor market trends, technological development, regulatory changes and competition dynamics are in a better position to sustain. According to Daft (2022), environmental scanning helps organizations reduce uncertainty, identify opportunities and respond effectively to external challenges. It suggests that effective environmental scanning enhances sustainability by enabling start-up manufacturing firms to anticipate changes, minimizing risks and aligning operations with evolving environmental demand.

However, the theory has limitations in developing economies such as Rwanda, where start-ups often lack the resources, expertise, and information systems required for effective environmental scanning. It also assumes predictable environmental conditions and overlooks the role of informal networks and experiential learning that entrepreneurs frequently use to navigate uncertainty. Empirical studies by Nkusi (2023), Gakwerere (2022), and Habinshuti and Twizeyimana (2024) reveal that many Rwandan manufacturing start-ups rely on informal sources of information, leading to uneven adaptation and sustainability outcomes. Despite these limitations, Contingency Theory remains valuable because it emphasizes flexibility, contextual decision-making, and strategic adaptation. The theory therefore explains how environmental scanning enables start-up manufacturing firms to align their operations with changing external conditions, thereby improving sustainability and long-term performance in dynamic business environments.

2.2.3. Goal Setting Theory

This theory was developed by Locke (1968) and later expanded by Locke and Latham (2020). Goal setting theory suggests that specific, challenging, and measurable goals improve organizational performance by increasing motivation, commitment and focus. In this study, the theory explains the relationship between strategic goal setting and sustainability. It suggests that start-up manufacturing firms that establish clear strategic objectives can coordinate resources, guide employees' efforts and follow long-term sustainability goals better. Scholars such as Prinder (2024) and Meyer and Bothma (2022) argue that goal clarity strengthens organizational commitment and improves performance outcomes. The theory supports the argument that well formulated strategic goals provide direction and facilitate sustainable growth.

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However, the theory has limitations in dynamic and resource-constrained environments such as Rwanda's start-up manufacturing sector. It assumes stable conditions and linear progress toward goals, overlooking the uncertainty, institutional changes, and adaptive learning processes that characterize many entrepreneurial ventures. Empirical studies by Niyonzima (2023), Musoni (2022), and Uwimana and Sebatware (2024) reveal that many Rwandan start-ups frequently modify or abandon initial goals due to regulatory changes, resource shortages, and social obligations, relying instead on flexibility and experimentation. Despite these limitations, Goal-Setting Theory remains valuable because it provides a practical framework for planning, accountability, and performance monitoring. The theory therefore explains how effective strategic goal setting can enhance sustainability by guiding decision-making, motivating action, and aligning organizational resources with long-term objectives among start-up manufacturing companies in Rwanda.

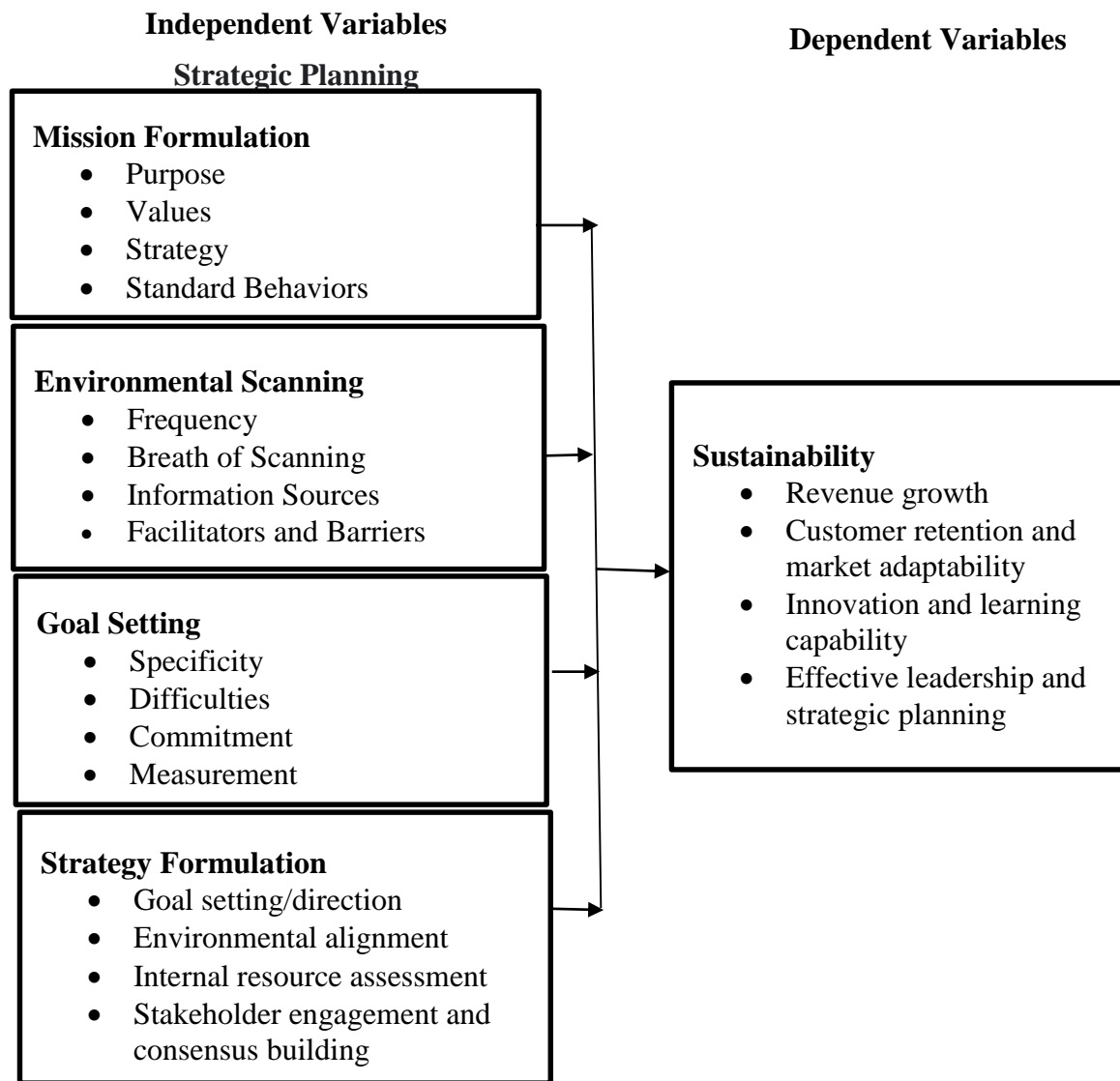
2.2.4. Resource-Based View Theory

The resource-based view theory was developed by Wernerfelt (1984) and further refined by Barney (2021). The theory says that sustainable competitive advantages arise from resources and capabilities that are valuable, rare, inimitable and non-substitutable (VRIN). In this study the theory explains the relationship between strategy formation and sustainability by emphasizing the importance of aligning organizational strategies with available resources and capabilities. Scholars such as Peteraf (2023) and Sirmon, Hitt, and Ireland (2021) suggested that effective resource management enable firms to achieve long term performance and sustainability. The theory encourages organizations to identify, develop and strategically deploy resources that enhance competitiveness and resilience.

However, RBV faces limitations when applied to start-up manufacturing firms in developing economies such as Rwanda, where strategic resources are often scarce, evolving, and externally supported. The theory assumes the existence of durable and proprietary resources, yet many start-ups rely on partnerships, mentorship, government programs, and shared resources rather than unique internal assets. Empirical studies by Nsengiyumva (2023), Uwamariya (2022), and Gahungu and Munezero (2024) show that sustainability among Rwandan start-ups is frequently driven by ecosystem support, learning opportunities, and collaborative networks rather than traditional VRIN resources. Despite these limitations, RBV remains relevant because it highlights the importance of capability development, resource assessment, and strategic resource management. The theory therefore explains how effective strategy formulation can enhance sustainability by enabling firms to acquire, integrate, and leverage resources and capabilities that support long-term growth and competitive performance in Rwanda's manufacturing sector.

2.3 Conceptual Framework

The conceptual framework of the study illustrates the diagrammatical representation of the connection between the explanatory and explained variable. Figure 1 depicts this relationship.



Source: Researcher (2025)

The conceptual framework guiding this study integrates key strategic management processes and their influence on sustainability among start-up manufacturing companies in Rwanda. Mission formulation comprising purpose, values, strategy, and standard behaviors serves as the foundational element that defines identity and direction (Freeman, 1984), shaping long-term commitment to sustainability. This is complemented by environmental scanning, which involves the frequency, breadth, information sources, and identification of facilitators and barriers in monitoring external dynamics such as market trends, regulations, and competition critical for adaptive decision-making (Daft, 2022). Goal setting, characterized by specificity, difficulty, commitment, and measurement, enhances focus and performance, drawing from Locke and Latham’s (2020) Goal-Setting Theory to drive intentional progress. Strategy formulation synthesizes these inputs through goal-directed planning, alignment with environmental conditions, internal resource assessment grounded in the Resource-Based View (Barney, 2021), and

stakeholder engagement to build consensus. The cumulative effect of these interrelated constructs is hypothesized to enhance sustainability, operationalized through revenue growth, customer retention and market adaptability, innovation and learning capability, and effective leadership and strategic planning (Gakwerere, 2022; Nsengiyumva, 2023). Together, these variables form a dynamic framework illustrating how deliberate strategic practices contribute to the resilience and longevity of start-up manufacturers in a developing economy.

3.0 Research Methodology

3.1 Research Design

A research design provides a structured framework for the collection, analysis, and interpretation of data, ensuring alignment with the study's objectives while enhancing validity and reliability (Creswell, 2024). This study adopted a descriptive research design to investigate the strategic planning practices and sustainability of selected start-up manufacturing companies in Kigali, Rwanda. Descriptive research is particularly suited for this inquiry as it enables systematic documentation of current conditions, behaviors, and relationships among variables without manipulating the environment (Shields & Rangarajan, 2022). Unlike experimental designs that require controlled interventions, the descriptive approach preserves ecological validity by observing firms in their natural settings, minimizing bias from artificial conditions. It also supports both quantitative and qualitative data integration, enabling triangulation that strengthens credibility (Creswell & Plano Clark, 2023). Given that many start-ups operate informally with limited documentation of strategic processes, this design facilitates direct engagement through surveys and interviews to reconstruct and describe actual practices. Furthermore, findings from a descriptive study can serve as a foundation for future explanatory or predictive research, policy development, and capacity-building programs tailored to the needs of nascent manufacturers in Rwanda.

3.2 Location of the Study

The study was conducted at the headquarters of Start-up manufacturing companies located in Kicukiro District, Kigali, Rwanda. Kicukiro, as one of the three districts of Kigali City, serves as a major hub for industrial and commercial activities, making it an ideal setting for examining internal audit practices and their impact on sustainability (NISR, 2021). Conducting the research at the company's main operational base allows for direct access to key personnel, including internal auditors, finance managers, and senior management, as well as relevant financial records, ensuring the collection of accurate and comprehensive data (Saunders, Lewis, & Thornhill, 2022).

3.3 Target Population

The target population for this study comprises all registered start-up manufacturing companies operating in Kigali, Rwanda, that have been in operation for at least one year and employ between 2 and 25 staff members, as these characteristics define nascent, non-subsidized entrepreneurial ventures most vulnerable to strategic planning gaps and sustainability challenges (Rwanda Development Board [RDB], 2023). According to the Rwanda Development Board's 2023 Manufacturing Sector Report, there are 187 registered start-up manufacturing firms meeting these criteria, forming the accessible and well-documented sampling frame for this study (RDB, 2023).

a total sample size of 127 firms was drawn, ensuring representation from micro start-ups (2–5 employees) to mature start-ups (21–25 employees). This method enhances representativeness, reduces sampling bias, and ensures that findings reflect the various operational contexts and strategic planning practices of Kigali's start-up manufacturing sector (Kothari, 2024).

3.5 Research Instruments

The data collection method for this study was a structured questionnaire specifically designed to gain an understanding of the strategic planning factors affecting the sustainability of the startups. The instrument was categorized into six sections; Section A allowed for the collection of demographic details, Section B assessed the formulation of mission, Section C resulted in data regarding environmental scanning, Section D provided information regarding goal setting, Section E analyzed components linked with the formulation of strategy, and Section F covered issues linked with the sustainability of the startup. Preparation of the instrument was grounded in a review of current literature and previous studies in the area to ensure that the instrument is contextually suitable and meaningful (Ayodele, 2022; Idowu *et al.*, 2022).

3.6 Piloting of Research Instruments

The study conducted a pilot test of the research instruments at Masaka Dairy Farm, a start-up manufacturing company located in Burera District, where 13 respondents (representing 10% of the sample) were involved to pre-test the questionnaire and interview guides. This process was undertaken to evaluate the clarity, relevance, reliability, and validity of the instruments prior to the main data collection, ensuring that the questions were well understood, response options were appropriate, and any ambiguities or inconsistencies were identified and corrected. The piloting also enabled the researcher to assess the practicality and feasibility of the data collection procedures, leading to necessary refinements that improved the accuracy, consistency, and overall quality of the data to be collected from the target population in Kigali, in line with established research methodology practices (Mugenda & Mugenda, 2020; Kothari, 2020).

3.6.1 Validity of the Instruments

To ensure the accuracy and appropriateness of the research instruments, validity testing was conducted to determine whether the questionnaire items adequately measured the intended study variables. Specifically, content validity was assessed through expert evaluation, where specialists in the relevant field reviewed the instruments for clarity, relevance, and representativeness of the research objectives. Their judgments were used to compute the Content Validity Index (CVI), which measures the proportion of items considered valid relative to the total number of items. A CVI value of 0.70 or above is generally regarded as acceptable, indicating that the instrument possesses sufficient content validity for data collection.

Table 3: Content Validity Index

Rater	Total items	Valid items	Validity index
1	45	42	0.933
2	45	44	0.978
3	45	43	0.956
4	45	45	1.000
Average			0.967

Source: **Pilot Data Results** (2026)

The results in Table 3 show that the instrument used in this study demonstrated high levels of content validity across all four expert raters. Each rater evaluated 45 items, and the validity indexes ranged between 0.933 and 1.000, indicating that most items were judged as relevant and representative of the construct being measured. Specifically, Rater 4 scored a perfect validity index (1.000), suggesting complete agreement on item appropriateness, while Rater 1 had the lowest index (0.933), which nonetheless exceeds acceptable thresholds commonly reported in validation research (Polit & Beck, 2021). The average Content Validity Index (CVI) across all raters was 0.967, further supporting that the measurement tool meets rigorous standards for content validity (Yusoff, 2021; Waltz et al., 2023).

High CVI scores like those reported here are consistent with best practices in instrument validation, wherein an average index of 0.90 or higher is typically considered excellent (Lynn, 2022; Grant & Davis, 2025). Such strong validity evidence suggests that the items effectively capture the domain of interest and are likely to produce reliable data during the main study phase. The consistency across multiple experts also helps reduce bias and enhances confidence that the instrument reflects theoretical constructs relevant to strategic planning and sustainability in start-up manufacturing contexts (Polit & Beck, 2021).

3.6.2 Reliability of the Instruments

Reliability analysis was conducted to determine the consistency and stability of the research instruments in measuring the study variables over time. This was achieved using Cronbach’s Alpha coefficient, which assesses the internal consistency of questionnaire items by examining how closely related they are in measuring the same construct. The reliability test was performed for each study variable to ensure that the items produced consistent results and minimized measurement errors.

Table 4: Reliability Analysis

Variable	Cronbach's Alpha	Comments
Mission formulation	0.756	Reliable
Environmental scanning	0.857	Reliable
Strategic goal setting	0.826	Reliable
Strategy formulation	0.935	Reliable
Sustainability	0.952	Reliable

Source: **Pilot Data Results** (2026)

The results of the reliability analysis presented in Table 4 show that all measured variables demonstrate acceptable internal consistency, indicating that the items used to measure each construct are stable and consistent. Mission formulation produced a Cronbach’s alpha of 0.756, which, while moderate, still exceeds the minimum acceptable threshold of 0.70 commonly recommended in social science research (Tavakol & Dennick, 2021). This suggests that the survey items designed to assess how start-ups define and communicate their mission are sufficiently reliable. Environmental scanning, with a Cronbach’s alpha of 0.857, reflects good reliability, implying that the items consistently measure the extent to which firms systematically examine external opportunities and threats (DeVellis, 2021). Similarly, strategic goal setting, with a Cronbach’s alpha of 0.826, indicates good consistency in items capturing firms’ processes of setting short- and long-term objectives aligned with their mission.

The highest levels of reliability were observed in strategy formulation ($\alpha = 0.935$) and sustainability ($\alpha = 0.952$), both of which exceed 0.90, demonstrating excellent internal consistency (Gliem & Gliem, 2023). This means that items intended to measure how start-ups develop detailed action plans and allocate resources (strategy formulation) function very consistently, reducing measurement error and strengthening confidence in the findings. Likewise, the sustainability construct exhibits outstanding reliability, indicating that items capturing economic, social, and environmental dimensions of a firm's long-term viability are cohesive and dependable (Schmitt, 2022). Overall, the Cronbach's alpha values suggest that the instrument is appropriate for empirical analysis in this study, providing dependable measures for assessing strategic planning variables and sustainability in selected start-up manufacturing firms.

3.7 Data Analysis Techniques and Presentation

The data analysis process involves extensive and complex scrutiny, cleansing, transformation, and structuring of data with the objectives of discovering meaningful insights, drawing inferences, and aiding in evidence-based decision-making (Wickham, 2024). The study adopted a combination of descriptive and inferential statistical methods in evaluating the impact of strategic planning on the sustainability of start-ups. The descriptive statistics of frequency, percentages, means, and standard deviations was used to summarize the characteristics and distributions within the dataset within participants. The use of descriptive tools was supplemented by the integration of inferential methods. The inferential methods include correlation and regression analysis. Such analysis methods investigate the interrelationships between variables; in particular, correlation examines the strength and direction of a connection while regression predicts the value of one or more predictor variables (Abdul-Jabbar & Farhan, 2022). All analysis procedures were carried out with the help of Statistical Package for Social Sciences (SPSS) 27, thus ensuring careful and reliable statistical calculations. The functional representation of the model relevant to this study is presented as:

$$SU = \beta_0 + \beta_1 MF + \beta_2 ES + \beta_3 GS + \beta_4 SF$$

Where;

MF = Mission Formulation

ES = Environmental Scanning

GS = Goal Setting

SF = Strategy Formulation

β_0 = Constant

β_1 - β_4 = Coefficients.

4.0 Results and Findings

4.1 Correlation Analysis

This section presents the correlation analysis, which examines the strength and direction of relationships between the strategic planning variables mission formulation, environmental scanning, strategic goal setting, and strategy formulation and the sustainability of selected start-up manufacturing companies in Rwanda. Correlation analysis helps to determine whether improvements in strategic planning practices are associated with higher levels of sustainability, indicating potential predictive or influential relationships. Table 4.18 provides a correlation matrix summarizing the relationships among the study variables, with values ranging from -1 to +1, where

positive values indicate direct relationships and negative values indicate inverse relationships. These results form the basis for understanding how each aspect of strategic planning contributes to organizational sustainability.

Table 5: Correlation Matrix

		Mission formulation	Environmental scanning	Strategic goal setting	Strategy formulation	Sustainability
Mission Formulation	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	111				
Environmental Scanning	Pearson Correlation	.269**	1			
	Sig. (2-tailed)	.004				
	N	111	111			
Strategic Goal Setting	Pearson Correlation	.226*	.546**	1		
	Sig. (2-tailed)	.017	.000			
	N	111	111	111		
Strategy Formulation	Pearson Correlation	.939**	.238*	.262**	1	
	Sig. (2-tailed)	.000	.012	.006		
	N	111	111	111	111	
Sustainability	Pearson Correlation	.882**	.427**	.384**	.1116**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	111	111	111	111	111

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: **Study Data (2026)**

The results presented in Table 5 indicate that there is a statistically significant positive relationship between all dimensions of strategic planning and sustainability of start-up manufacturing companies in Rwanda. Specifically, mission formulation shows a strong positive correlation with sustainability ($r = .882, p < .01$), suggesting that clearly defined organizational missions significantly enhance long-term sustainability outcomes. Environmental scanning also demonstrates a moderate positive relationship with sustainability ($r = .427, p < .01$), indicating that continuous monitoring of external environments contributes to improved adaptability and performance. In addition, strategic goal setting is positively correlated with sustainability ($r = .384, p < .01$), implying that well-defined and measurable goals support organizational survival and growth. These findings are consistent with strategic management literature which emphasizes that mission clarity, environmental awareness, and goal alignment are critical determinants of organizational sustainability, particularly in dynamic and resource-constrained environments (Wheelen et al., 2022; OECD, 2023).

Furthermore, strategy formulation exhibits a very strong positive correlation with mission formulation ($r = .939, p < .01$) and a significant positive relationship with sustainability ($r = .1116,$

$p < .01$), indicating that effective strategy development is central to achieving sustainable performance in start-up manufacturing firms. The overall pattern of correlations suggests that the components of strategic planning are interrelated and collectively reinforce sustainability outcomes. This aligns with empirical evidence which shows that integrated strategic planning processes enhance organizational coherence, resilience, and long-term competitiveness (Bryson, 2021; UNCTAD, 2022). The significant relationships across variables further confirm that firms that effectively formulate missions, scanning their environment, set strategic goals, and develop adaptive strategies are more likely to achieve sustainable performance in emerging economies such as Rwanda (World Bank, 2023; OECD, 2024).

4.2 Multiple Regression Analysis

Table 6 presents the combined model summary showing the overall predictive power of strategic planning variables on sustainability of start-up manufacturing companies in Rwanda. The results indicate a strong positive relationship between independent variables (mission formulation, environmental scanning, strategic goal setting, and strategy formulation) and sustainability, as shown by a correlation coefficient ($R = 0.912$). The coefficient of determination ($R^2 = 0.832$) implies that 83.2% of the variation in sustainability is explained by the combined effect of strategic planning practices, while the adjusted R^2 of 0.825 confirms the robustness of the model after adjusting for sample size and predictors. The low standard error of the estimate (0.11520) further indicates high precision of the model, while the Durbin-Watson statistic of 2.237 suggests no significant autocorrelation in the residuals, confirming the reliability of the regression results. These findings align with contemporary studies which emphasize that integrated strategic planning significantly enhances organizational sustainability by improving coordination, resource utilization, and adaptability in dynamic business environments (OECD, 2023; World Bank, 2024). Similarly, strategic management literature highlights that firms that systematically implement mission-driven planning, environmental scanning, and goal alignment are more likely to achieve long-term sustainability and competitive advantage (Bryson, 2021; Wheelen et al., 2022; UNCTAD, 2022).

Table 6: Combined Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.912 ^a	.832	.825	.11520	2.237

a. Predictors: (Constant), Strategy formulation, Mission formulation, Environmental scanning, Strategic goal setting

b. Dependent Variable: Sustainability

Source: Study Data (2026)

Table 7 presents the combined ANOVA results used to test the overall significance of the regression model examining the effect of strategic planning on sustainability of start-up manufacturing companies in Rwanda. The findings reveal that the model is statistically significant ($F = 131.028$, $p < 0.001$), indicating that the combined effect of mission formulation, environmental scanning, strategic goal setting, and strategy formulation significantly predicts sustainability. The regression sum of squares (6.956) is substantially higher than the residual sum of squares (1.407), demonstrating that the model explains a large proportion of the variation in sustainability compared to unexplained variation. This confirms that strategic planning practices collectively have a strong and meaningful influence on organizational sustainability. These results

are consistent with contemporary studies which emphasize that integrated strategic planning significantly enhances firm performance and sustainability by improving coordination, adaptability, and resource utilization in competitive environments (OECD, 2023; World Bank, 2024). Similarly, strategic management literature highlights that firms that systematically apply structured planning processes achieve superior long-term outcomes due to improved alignment between internal capabilities and external environmental demands (Bryson, 2021; Wheelen et al., 2022; UNCTAD, 2022).

Table 7: Combined ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.956	4	1.739	131.028	.000 ^b
	Residual	1.407	106	.013		
	Total	8.362	110			

a. Dependent Variable: Sustainability

b. Predictors: (Constant), Strategy formulation, Mission formulation, Environmental scanning, Strategic goal setting

Source: Study Data (2026)

The findings in Table 8 present the regression coefficient results showing the influence of strategic planning dimensions on sustainability of start-up manufacturing companies in Rwanda. The results indicate that mission formulation has a strong and statistically significant positive effect on sustainability ($\beta = 0.617$, $t = 5.191$, $p < 0.001$), implying that a well-defined mission is the most influential predictor of sustainability among the variables studied. Environmental scanning also has a significant positive effect ($\beta = 0.153$, $t = 3.132$, $p = 0.002$), showing that firms that actively monitor their external environment are more likely to achieve sustainable performance. Similarly, strategic goal setting significantly influences sustainability ($\beta = 0.106$, $t = 2.176$, $p = 0.032$), indicating that clearly defined and measurable goals contribute positively to organizational sustainability. These findings align with recent studies which emphasize that mission clarity, environmental awareness, and structured goal setting are key determinants of long-term organizational success, particularly in dynamic and competitive markets (OECD, 2023; Bryson, 2021; Wheelen et al., 2022).

However, the results show that strategy formulation has a positive but statistically insignificant effect on sustainability ($\beta = 0.213$, $t = 1.790$, $p = 0.076$), suggesting that although strategy formulation contributes to sustainability, its effect is not strong enough to be statistically significant at the 5% level in this study. This may imply challenges in effective implementation or translation of formulated strategies into actionable outcomes within start-up manufacturing firms. Empirical literature indicates that the effectiveness of strategy formulation depends heavily on implementation capacity, leadership commitment, and resource availability, which are often limited in start-up environments (UNCTAD, 2022; World Bank, 2024). Overall, the model suggests that mission formulation is the most critical determinant of sustainability, followed by environmental scanning and strategic goal setting, while strategy formulation requires strengthening to achieve significant impact on sustainability outcomes.

Table 8: Coefficient Results for All Variables

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.576	.261		-2.206	.030
	Mission Formulation	.653	.126	.617	5.191	.000
	Environmental Scanning	.190	.061	.153	3.132	.002
	Strategic Goal Setting	.094	.043	.106	2.176	.032
	Strategy Formulation	.202	.113	.213	1.790	.076

a. Dependent Variable: Sustainability

Source: **Study Data, (2026)**

The overall regression equation can be represented as:

$$\text{Sustainability} = -0.576 + 0.653 \text{ Mission formulation} + 0.190 \text{ Environmental scanning} + 0.094 \text{ Strategic goal setting} + 0.202 \text{ Strategy formulation}$$

The regression equation indicates that sustainability of start-up manufacturing companies in Rwanda is influenced by the combined effect of mission formulation, environmental scanning, strategic goal setting, and strategy formulation. The constant value of -0.576 suggests that, when all strategic planning variables are held at zero, sustainability would be negative, highlighting the importance of strategic planning practices in achieving positive sustainability outcomes. The coefficient for mission formulation ($\beta = 0.653$) shows that a one-unit increase in mission formulation leads to a 0.653 increase in sustainability, making it the strongest predictor among all variables. This finding emphasizes that a clear and well-communicated mission plays a central role in guiding organizational direction, aligning employees, and enhancing long-term sustainability, consistent with strategic management literature which identifies mission clarity as a foundation for organizational success (Bryson, 2021; Wheelen et al., 2022).

Environmental scanning ($\beta = 0.190$), strategic goal setting ($\beta = 0.094$), and strategy formulation ($\beta = 0.202$) also show positive relationships with sustainability, meaning that improvements in these areas contribute to enhanced sustainability performance. Environmental scanning helps firms respond effectively to market and environmental changes, while strategic goal setting ensures direction and measurable progress. Strategy formulation, although positive, has a relatively moderate contribution compared to mission formulation, suggesting that its effectiveness depends on how well it is implemented within the organization. These findings are consistent with recent studies which show that firms that integrate environmental analysis, clear goal setting, and structured strategy development are more likely to achieve resilience and sustainable growth, particularly in dynamic and resource-constrained environments (OECD, 2023; UNCTAD, 2022; World Bank, 2024). Overall, the model confirms that strategic planning is a critical driver of sustainability in start-up manufacturing firms in Rwanda.

5.0 Discussions of Findings, conclusion and recommendation

5.1 Discussions of Findings

The findings of this study reveal that strategic planning processes, particularly mission formulation, environmental scanning, strategic goal setting, and strategy formulation have a strong

and significant influence on sustainability of start-up manufacturing firms. This is consistent with recent empirical evidence showing that structured strategic management practices enhance organizational sustainability by improving coordination, efficiency, and long-term adaptability (Mehta et al., 2025; Bryson, 2021).

5.1.1 Mission Formulation

The findings on mission formulation showed a strong positive perception among respondents, with high mean scores across all items (ranging from 4.32 to 4.50) and a composite mean of 4.42 with a standard deviation of 0.718. Descriptive results indicated that most respondents agreed or strongly agreed that their organizations have clear mission statements, with 54.1% strongly agreeing and 39.6% agreeing that the mission is well defined. In addition, 55.0% strongly agreed that employees align their activities with the mission, while 58.6% strongly agreed that the mission significantly influences long-term sustainability. These results suggest that mission formulation is well established and actively embedded in organizational practices within start-up manufacturing firms. Inferential statistics further confirmed the importance of mission formulation in influencing sustainability. Correlation results showed a strong positive relationship between mission formulation and sustainability ($r = 0.882$, $p < 0.000$). The regression analysis also revealed that mission formulation is the strongest predictor of sustainability with a beta coefficient of 0.653 ($t = 5.191$, $p < 0.001$). This indicates that a unit increase in mission formulation leads to a significant improvement in sustainability outcomes, making it the most influential strategic planning component in the model. Mission formulation emerged as the strongest predictor of sustainability, which aligns with studies indicating that clearly defined organizational purpose improves strategic alignment, employee commitment, and stakeholder engagement, ultimately strengthening sustainability outcomes (Wheelen et al., 2022; OECD, 2023).

5.1.2 Environmental Scanning

The descriptive results for environmental scanning showed high levels of agreement, with a composite mean of 4.47 and a standard deviation of 0.679. Respondents indicated that their organizations actively monitor market trends (56.8% strongly agree), scanning competitors (69.4% strongly agree), and collect technological intelligence (58.6% strongly agree). Additionally, 53.2% strongly agreed that external environmental factors are regularly assessed, and 58.6% agreed that environmental scanning helps anticipate risks. These findings suggest that environmental scanning is a well-practiced activity in start-up manufacturing firms, supporting decision-making and operational responsiveness. Inferential results confirmed a significant positive relationship between environmental scanning and sustainability ($r = 0.427$, $p < 0.01$). The regression results further showed that environmental scanning has a positive and statistically significant effect on sustainability ($\beta = 0.190$, $t = 3.132$, $p = 0.002$). This implies that improvements in environmental scanning practices lead to better sustainability performance, although its effect is moderate compared to mission formulation. Environmental scanning was found to significantly contribute to sustainability, supporting literature that emphasizes the importance of continuous monitoring of external environments in enabling firms to respond effectively to market dynamics, regulatory changes, and technological disruptions (UNCTAD, 2022; World Bank, 2024).

5.1.3 Strategic Goal Setting

The descriptive findings revealed that strategic goal setting is strongly implemented in the selected firms, with a composite mean of 4.42 and a standard deviation of 0.752. Most respondents agreed or strongly agreed that strategic goals are regularly reviewed (69.4% strongly agree), aligned with mission and vision (52.3% strongly agree), and contribute to sustainability (58.6% strongly agree). In addition, 53.2% strongly agreed that resources are efficiently allocated, while 54.1% strongly agreed that employee performance is linked to strategic goals. These results indicate that goal setting is well integrated into organizational systems and performance management. Inferential analysis showed a significant positive relationship between strategic goal setting and sustainability ($r = 0.384$, $p < 0.01$). The regression results confirmed a positive and statistically significant effect ($\beta = 0.094$, $t = 2.176$, $p = 0.032$), indicating that strategic goal setting contributes to sustainability, although its effect is relatively weaker compared to mission formulation and environmental scanning. This suggests that while goal setting is important, its impact on sustainability depends on effective implementation and alignment with other strategic planning components.

Strategic goal setting was found to positively influence sustainability. This finding is consistent with recent studies which suggest that while strategic planning is essential, its effectiveness depends heavily on implementation capacity and organizational readiness (Bryson, 2021; UNIDO, 2023).

5.1.4 Strategy Formulation

The descriptive findings indicated that strategy formulation is well practiced in start-up manufacturing firms, with a composite mean of 4.41 and a standard deviation of 0.729. Respondents reported that management actively involves employees in strategy formulation (58.6% strongly agree), strategies are adaptable to environmental changes (53.2% strongly agree), and resources are aligned with strategies (55.0% strongly agree). In addition, 52.3% strongly agreed that risk management is integrated into strategy formulation. These findings show that strategy formulation is dynamic, participatory, and responsive to environmental conditions. However, inferential results revealed a weaker and statistically insignificant effect of strategy formulation on sustainability ($\beta = 0.202$, $t = 1.790$, $p = 0.076$), although the relationship was positive. This suggests that while strategy formulation contributes to sustainability, its impact is not strong enough to be statistically significant at the 5% level, possibly due to implementation gaps or resource constraints. Despite this, correlation analysis still showed a positive association, indicating that strategy formulation remains an important but underperforming driver of sustainability compared to other strategic planning variables.

5.2. Conclusions

The study concludes that strategic planning significantly enhances the sustainability of start-up manufacturing companies in Rwanda. Key components of strategic planning, including mission formulation, environmental scanning, strategic goal setting, and strategy formulation, are positively associated with long-term organizational performance and resilience. Therefore, start-up manufacturing firms that effectively implement these strategic practices are more likely to achieve sustained growth and competitiveness in the Rwandan manufacturing sector.

5.2.1 Mission Formulation

The study concludes that mission formulation plays a critical role in guiding both operational activities and long-term strategic direction in start-up manufacturing companies. A clear and well-communicated mission enhances employee alignment, decision-making, and organizational focus, thereby strengthening overall sustainability. Firms with a strong mission framework are better positioned to coordinate activities and maintain consistency in achieving their long-term objectives.

5.2.2 Environmental Scanning

It is concluded that environmental scanning is an essential strategic practice that enables organizations to remain responsive to market dynamics and external changes. Through continuous monitoring of competitors, customers, and the broader business environment, firms are able to identify opportunities and threats in a timely manner. This enhances adaptability and supports informed decision-making, which contributes positively to organizational sustainability.

5.2.3 Strategic Goal Setting

The study concludes that strategic goal setting is an important mechanism for translating organizational vision and mission into actionable and measurable outcomes. Clear and well-aligned goals improve coordination, resource allocation, and performance management within the organization. However, the effectiveness of goal setting depends on consistent implementation and integration across all organizational levels to fully support sustainability.

5.2.4 Strategy Formulation

It is concluded that strategy formulation is a necessary but relatively less influential component in determining sustainability outcomes compared to other strategic planning variables. While firms demonstrate efforts to design adaptable and participatory strategies, challenges in implementation may limit its full impact. Nevertheless, effective strategy formulation remains important for aligning resources, managing risks, and supporting long-term organizational growth.

5.3 Recommendations

5.3.1 Recommendations for Practice

Start-up manufacturing companies should strengthen the integration of strategic planning practices into their daily operations by ensuring that mission formulation is clearly communicated and consistently reinforced across all levels of the organization. Management should also enhance employee participation in strategic processes, improve the use of environmental scanning tools such as market research and competitor analysis, and ensure that strategic goals are regularly reviewed and aligned with available resources. Additionally, firms should focus on improving implementation mechanisms to ensure that formulated strategies are effectively translated into actionable outcomes that support long-term sustainability. Management should ensure that the mission is not merely documented but integrated into daily operations, and employee performance systems. Organization should also conduct periodic mission awareness programs and stakeholders' engagement sessions to strengthen employees' commitment and alignment with the organization goal.

Given the significant positive influence of environmental scanning on sustainability, start-up manufacturing firms should establish structured mechanisms for continuously monitoring internal and external business environments. Management should invest in market intelligence systems, competition analysis, technology trend monitoring and regulatory compliance reviews to identify opportunities and potential threats early.

Further, start-up manufacturing companies should ensure that strategic goals are specific, measurable, achievable, relevant and time-bound (SMART) and closely aligned with the organization's mission and sustainability objectives. They should link employees' performance indicators and resource allocation decisions to strategic objectives to improve implementation effectiveness.

5.3.2 Recommendations for Policy

Policy makers, particularly through government agencies responsible for industrial development and SME support, should create enabling frameworks that promote structured strategic planning among start-up manufacturing firms. They should develop guidelines and frameworks that encourage start-up manufacturing companies to establish clear sustainability-oriented mission statements.

Policymakers should also create an enabling environment that facilitates access to timely and reliable markets, technological and regulatory information. Governments and regulators should establish centralized information platforms and industry intelligence databases to help start-ups monitor market trends, technological developments and emerging risks.

Additionally, in relation to strategic goal setting, policymakers should promote the adoption of structured strategic planning practices among start-up manufacturing firms by integrating strategic planning trainings in entrepreneurship development programs. Regulators should develop policy frameworks that encourage firms to establish measurable performance targets linked.

5.4 Recommendations for Further Research

Future studies should expand the scope of this research by examining other sectors beyond manufacturing to determine whether similar relationships between strategic planning and sustainability exist in different industries. Researchers may also consider incorporating additional variables such as leadership style, organizational culture, and technological innovation to provide a more comprehensive understanding of sustainability drivers. In addition, longitudinal studies are recommended to assess how strategic planning practices influence sustainability outcomes over time, particularly as start-up firms grow and evolve in dynamic business environments. Furthermore, future efforts should focus on gathering more Rwanda specific empirical data especially concerning mission formulation and goal setting.

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