ENTREPRENEURIAL INNOVATION AND COMPETITIVENESS OF FOOD AND BEVERAGE MANUFACTURING FIRMS IN NAIROBI CITY COUNTY, IN KENYA

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Entrepreneurial Innovation and Competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County, In Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

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This thesis has been submitted for examination with our approval as the University Supervisors

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DEDICATION

I dedicate this work to my family and friends for their support and encouragement.

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ACRONYMS AND ABBREVIATIONS

CBK	Central Bank of Kenya
DTI	Department of Trade and Industry
EIU	Economist Intelligence Unit
GDP	Gross Domestic Product
ITC	International Trade Centre
KAM	Kenya Association of Manufacturers
KIPPRA	Kenya Institute Public Policy Research Analysis
KNBS	Kenya National Bureau of Standards
KNCCI	Kenya National Chamber of Commerce and Industry
MSME	Micro Small and Medium Enterprises
MITC	Ministry of Industry, Trade and Cooperatives
OECD	Organization for Economic Development
RoK	Republic of Kenya
SMEs	Small and Medium Enterprises
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
UN	United Nations
WB	World Bank

DEFINITION OF OPERATIONAL TERMS

Innovation Application and development of new ideas and initiatives to products, processes, or other strategic practices by which enterprises create value and wealth. Ndesaulwa and Kikula (2016) posit that innovation is the process of introducing new or improved processes, products, or services arising from new scientific or technological knowledge and the ability of innovative entrepreneurs.

Product Innovation Conceptualization, design, development, validation, and commercialization of new products and services aimed at attracting and retaining new and existing customers (Olannye & Eromafuru, 2016). Innovation involves an organization's ability to maintain production that provides better solutions to customers' expectations and needs.

Process Innovation Development of a new or significantly upgraded production process and delivery method through the reengineering of heterogeneous operational activities, such as changes in techniques, the adoption of new equipment, and new management practices (Fathali, 2016).

Market Innovation Implementation of new marketing methods that involve significant changes to a firm's marketing mix, including product design or packaging, product placement, product promotion, and product pricing, aimed at better addressing customers' needs and opening new potential markets to increase the firm's sales (American Marketing Association, 2013).

Organizational Innovation It focuses on the implementation of new organizational methods, routines, procedures, mechanisms, and systems to renew teamwork, information sharing, coordination, and

collaboration, thereby enhancing productivity and improving customers' perception of the organization's product (Robert, 2017).

Firm size the organization's resources, turnover, or workforce size (*Zhang et al.*, 2013).

Firm Competitiveness The ability of a firm to design, produce, and commercialize an offering that fully, uniquely, and continuously fulfills the needs of a targeted market segment, in terms of quality, quantity, and timeliness of delivery, and to achieve a sustainable return on the resources employed (Sadam & Aziz, 2016).

The Kenya Vision 2030 Kenya's roadmap to a middle-income economy through socio-economic and political Development by 2030 (RoK, 2015).

ABSTRACT

Kenya's food and beverage manufacturing subsector, largely composed of SMEs that employ millions and contribute significantly to GDP, continues to show slow growth, high early-stage failure rates, and uneven competitive performance. The main issue driving this study is a context-specific evidence gap: despite widespread focus on "innovation," managers and policymakers lack clear guidance on which types of innovation most improve competitiveness in this subsector and whether firm size influences these effects. Guided by a positivist research philosophy and grounded in the Schumpeterian Theory of Innovation and Entrepreneurship, the Theory of the Innovative Firm, the Resource-Based View, and Dynamic Capabilities Theory, the study aimed to achieve one broad goal, to determine how entrepreneurial innovation affects the competitiveness of food and beverage manufacturing firms in Nairobi City County, Kenya, and four specific objectives: to evaluate the impacts of product development, process, marketing, and organizational innovations, and to see if firm size moderates the relationship between entrepreneurial innovation and competitiveness. Using a convergent mixed-methods approach, the study covered all 201 licensed food and beverage manufacturers in Nairobi City County (2022), with owner/managers as respondents selected through stratified random sampling. Data collection involved structured questionnaires. Quantitative data were analyzed using SPSS, including descriptive statistics, regression models, and comprehensive diagnostic tests (normality, multicollinearity, and homoscedasticity). Qualitative responses were thematically coded and integrated to strengthen inferences. Results indicate that innovation has a significant impact on competitiveness. Entrepreneurial innovation has the strongest effect ($\beta = 0.925$, $p < 0.001$), followed by process ($\beta = 0.793$, $p < 0.001$), marketing ($\beta = 0.732$, $p < 0.001$), product development ($\beta = 0.666$, $p < 0.001$), and organizational innovation ($\beta = 0.591$, $p < 0.001$). Larger firms have a small but significant advantage in adoption ($p = 0.011$), and firm size substantially influences the entrepreneurial innovation–competitiveness link ($p < 0.001$). The study contributes to theory by empirically linking firm-level innovation streams to competitiveness in an emerging-market manufacturing context and by demonstrating a size-dependent return to entrepreneurial innovation. Practically, it recommends focusing on entrepreneurial, process, and marketing innovations, while improving product development and organizational practices, and using scale to embed and normalize innovative routines—ultimately developing dynamic capabilities for sustained competitive advantage.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Entrepreneurial innovation plays a key role in achieving and maintaining competitive advantage and improving organizational performance (Hajar, 2015). Manufacturing firms face numerous challenges stemming from internal and external forces, necessitating innovation to remain competitive in the market and enhance efficiency and performance (Slivko, 2019). This drives the creation of competitive risks and development measures to boost competitiveness and attain a competitive advantage. Manufacturing firms have also sought to implement information technology to achieve cost reductions in production, improve operational effectiveness, and enhance their reputation (Shaw & de Mattos, 2021). Deploying innovation is critical for achieving better performance in manufacturing firms.

Manufacturing firms are widely seen as the main drivers of economic growth. Because of this recognition, entrepreneurial innovation has become a crucial issue that requires adaptable approaches worldwide to keep them competitive in today's dynamic global market. SMEs are more creative than larger firms due to their flexibility and ability to quickly and effectively integrate innovations arising from organizational improvement efforts (Garcia, 2014). The current and future risks, opportunities, and threats facing manufacturing firms in sustainable development and enhancing competitiveness have driven the deployment of entrepreneurial innovations.

The manufacturing sector plays a major role in the economic development of any nation by being the main creator of new jobs and a generator of creativity and innovation that drive economic growth. Small and Medium Enterprises (SMEs), which include manufacturing firms, are cornerstones of growth, employment, and income generation, thereby making significant contributions to improving a country's economic and social sectors (World Bank, 2015 & KNBS, 2016). More than 95% of businesses worldwide are SMEs, and they account for about 60% of private sector employment (Ayyagari *et al*., 2011). According to Miles *et al*. (2017), SMEs generate

diverse sources of national income, enhance a nation's competitiveness, and promote economic development, thereby fostering flexibility and resilience in economies. Additionally, manufacturing firms play a pivotal role not only in industrial outputs but also in exports and in generating a wide portfolio of products for both local and international markets.

Manufacturing firms come in various sizes, are increasingly adaptable, and can quickly conceptualize, develop, and implement new ideas with agility. According to Poorangi, Khi, and Kardevang (2013), all organizations, regardless of their size and scope of operation, face tough competition. Farsi and Toghrace (2014) note that failing to innovate leads to consequences such as economic collapse and decreased competitiveness. Rostek (2012) argues that SMEs need to improve their competitiveness to survive in a changing environment and amid strong business competition. Small and medium enterprises promote innovation and competition while also enhancing enterprise culture, which is vital for modernization and industrialization (KIPPRA, 2013; RoK, 2015). Accordingly, manufacturing firms of various sizes engage in a range of innovations that are key drivers of competitiveness, profitability, growth, and value creation (Ionesco & Dumitru, 2015). In the modern globalized world, new technologies and advanced connectivity present manufacturing firms with numerous opportunities, but also pose significant threats.

In today's turbulent economic environment, competitiveness has become more vital than ever for a firm's survival and success. Dynamic environments reflect uncertainty in customer demand and the unpredictable actions of competitors. Without innovation through new product development and access to higher-value markets, the potential for success for manufacturing firms remains relatively low (Ahmad, AbuBakar, Faziharudean & Mohamed, 2015). The macro and micro environments in which businesses operate are constantly changing, and players must adapt to survive and grow. Given the short product life cycles, technological advancements, cutthroat competition, and globalization, firm innovation and innovative behavior are critical for survival, growth, and profitability in a dynamic business environment. Global competition, rapid technological changes, market liberalization, poor infrastructure, and limited access to markets all affect the competitiveness of SMEs (Mwangi &

Ngugi, 2014). Manufacturing firms can achieve a competitive advantage by creating value, specifically, by protecting their innovation activities from competitors. Nonetheless, manufacturing firms face unique challenges in differentiating their products and services from those of their competitors. Fathali (2016) argues that innovation practices serve as a driver of improvements in methodologies, connections, and procedures within firms, boosting effectiveness and competitiveness. The challenges for most manufacturing firms in the 21st century include increasing global competition in a rapidly changing market (Kodasca, 2006; Kiraka, 2007; Mensah & Acquah, 2015).

Despite this, manufacturing firms have an opportunity to overcome these challenges through innovation. To address emerging problems, they should continuously innovate to shorten cycle times and introduce lower-cost products more quickly, with higher quality, to better meet customer and market needs (Chesbrough, 2010). For manufacturing firms, greater innovation is essential to offset increased vulnerability in a complex business environment characterized by a knowledge-based economy. Innovation is a vital tool that creates opportunities for new inventions and the development of new markets, boosting competitiveness and ensuring sustainable growth (Whalen et al., 2016). Arguably, manufacturing firms turn to innovation as a strategic response to industry competition (Zahoor Al-Tabaa, 2020). Firms achieve and maintain competitiveness through processes that help them adapt to a dynamic, volatile environment. A firm's ability to adapt to market changes through innovation is crucial to its competitiveness (Teece, 2009).

Furthermore, due to increasing competition, the ability to control and manage innovation processes has become extremely important for governments and organizations, given the impact that limited or inadequate resources can have on future growth. Remaining competitive in today’s world requires organizations to pursue innovation (Teece, 2007). Researchers have suggested that SMEs tend to be less innovative than larger enterprises. Although SMEs are more innovative due to their diversity, their capacity for innovation is often constrained by limited financial and human resources. SMEs benefit more from innovation than mature organizations, mainly because of their flexibility to adapt to changes in their environment or industry.

According to Kotey (2014) and Schiloro (2015), when combined with a good strategy, an innovative culture enhances a firm's competitiveness.

1.1.1 Global Perspective on Entrepreneurial Innovation and Competitiveness of Food and Beverage Manufacturing Firms

Manufacturing firms play a vital role in driving economic growth in both developing and developed economies (Faciola, Rollo, 2020). They dominate global business and stimulate economic growth and development (UNDP, 2015). SMEs are estimated to make up more than 95% of all enterprises worldwide and are a significant economic force and employer in the European Union. Globally, recent empirical studies show that SMEs contribute over 64% of GDP and over 65% of total employment in high-income countries such as Britain, the USA, Canada, and China (Asta & Zaneta, 2010). The global economy is projected to grow by 5.9% in 2021, up from a 3.1% contraction in 2020. The global importance of SMEs, especially in the manufacturing sector, is undeniable, and their catalytic roles have been demonstrated in various countries, where they are the largest contributors to GDP.

Overall, about 99% of businesses in the European Union are SMEs (European Commission, 2016), and this trend is mirrored across developing nations. In Japan and China, SMEs account for 60% of GDP; in the U.S., the figure rises to 65%, and in the European Union, SMEs also play a significant role. SMEs form the backbone of Asian economies, accounting for 98% of enterprises and 66% of the national labor force. In countries with lower per capita income, SMEs account for 52% of GDP. In low-income-per-capita nations, SMEs have a greater impact on employment, at about 78%, compared to high-income countries, where the figure drops to 59% (Steering group, 2011). The modern business environment is dynamic, requiring constant adjustments across all business functions and strategies to ensure sustainable growth. Manufacturing firms have gained worldwide importance due to their role in industrialization, employment, output growth, export promotion, and regional balance (Kathuria & Manita, 2012).

In the United States, SMEs make up a vast majority of businesses and account for nearly half of GDP (Kotey, 2014). SMEs account for 99.8% of all enterprises, provide

67% of employment, and contribute 58% of gross value. According to the Organization for Economic Cooperation and Development (OECD, 2020), SMEs significantly contribute to innovation in economies worldwide. Data from the European Union show that 99% of all businesses in Greater Europe are SMEs, and they account for about 84% of new jobs created. In the U.S., SMEs account for 52% of private-sector employment, 75% of net job growth, and 25% of the country's GDP. Combined data from European Union member states indicate that SMEs account for about 52% of the private sector. The United States Small Business Administration (2012) reported that SMEs created two-thirds of all new jobs and invested more than half of all technological and innovation products. Similarly, in Thailand, the majority of businesses are SMEs. A study by Kosgei and Maru (2015) suggests that the catalytic roles of SMEs and cottage industries are evident in many economies, including Japan, South Korea, Malaysia, Zambia, and India, among others. In North America, manufacturing firms account for a larger percentage of all businesses, contributing approximately half of the GDP in both the United States and Canada. An economic report by the World Bank (2015) indicates that SMEs play an important role in most economies. Over 90% of SMEs experienced a decline in sales and market opportunities due to COVID-19, highlighting the need to provide market opportunities through exhibitions.

In Colombia, Ocasal (2022) noted that SMEs face difficulties across all industrial sectors and found that, at the national level, it remains unclear whether there is a culture of innovative thinking among their leaders. The research used a descriptive approach, supported by both qualitative and quantitative studies of a sample of Colombian SMEs. It analyzed data on competitiveness, innovation, and technological development in SMEs. In Colombia, the highest concentration of researchers is in the education sector at 95.7%, while only 2.5% are in companies and 1.7% are outside the country. Regarding limitations, no evidence was found from studies promoting innovative thinking techniques. The practical implications of this research are to demonstrate the importance for SMEs of strengthening research in their management.

In Poland, Czuba et al. (2018) assessed the impact of innovations on the competitiveness of Polish small and medium-sized manufacturing enterprises (SMEs)

and analyzed trends in innovation implementation among Polish SMEs from 2012 to 2015 across eight areas of operation: new products or services, new approaches to customer service, expansion into new geographic markets, significant changes to existing offerings, substantial organizational changes, technological or production method changes, marketing innovations, and shifts in distribution methods. Data were collected through direct interviews with respondents in the SME sector. Data were analyzed using correspondence analysis, which allowed the creation of a model summarizing the correspondence between groups of enterprises and types of innovations.

1.1.2 Regional Perspective on Entrepreneurial Innovation and Competitiveness of Food and Beverage Manufacturing Firms

The past decade has seen significant growth in African countries compared with other economies. According to the Organization for Economic Co-operation and Development (OECD, 2014) report, SMEs play a major role in transforming developing countries into industrial economies. SMEs are the engines driving African economies and serve as a stepping stone toward industrialization. Statistics show that about 95% of businesses in Africa are SMEs (Frojos & Green, 2010). These SMEs are notable for their simple yet innovative approach to meeting African needs by offering affordable products and services, and they serve as a source of income and employment. SMEs account for around 95% of all enterprises on the continent, contribute about 40% of GDP, create over 50% of new jobs, and comprise approximately 80% of the continent's workforce (Kumar, 2014). This leads to an increase in the population with disposable income, which in turn creates demand and drives the economy.

African countries are thus making significant progress toward developing a competitive and vibrant manufacturing sector (Biswas, 2014). A review by Liedholm and Mead (2013) of many African nations has shown that roughly 17-27% of their working population is employed in manufacturing, which is twice the share employed in the public sector and large-scale enterprises. The manufacturing sector in South Africa has contributed notably to its economy, but its importance declined from 19%

in 1993 to 17% in 2012. Its contribution to GDP was 13.9% lower than that of the service sector, which accounted for 73% (Oke, 2015).

Manufacturing firms account for 56% of private-sector employment and 36% of GDP (Neneh & Zyl, 2012). Across the Asian Pacific region, SMEs account for over 90% of all enterprises (Mohammad, 2012). In Ghana, SMEs contribute about 70% of industrial employment and over 50% of its GDP (Ofosu & Dzisi, 2014). In Nigeria, 98% of all manufacturing businesses are SMEs, which account for 48% of industrial output by value added and employ 70% of the workforce (Abiodun & Harry, 2014). The performance of SMEs in the manufacturing sector remains disappointingly low. Although the manufacturing value-added contribution from SMEs increased, it remains modest, accounting for 14.2 percent. However, two-thirds (67%) of manufacturing firms are micro and small enterprises (KIPPRA, 2013). Poverty reduction is a vital role played by SMEs in developing nations (Abor & Quartey, 2010).

1.1.3 Local Perspective on Entrepreneurial Innovation and Competitiveness of Food and Beverage Manufacturing Firms

The manufacturing sector is integral to Kenya's development strategies aimed at becoming a globally competitive nation (GOK, 2007). Kenya's policy on SMEs, as outlined in Sessional Paper number 2 (RoK, 2015), makes clear that the sector is not only a provider of goods and services but also a driver of competition, innovation, and an enterprise culture necessary for private sector development and industrialization. Small and medium enterprises are the backbone of the Kenyan economy, constituting 98% of all businesses. In Kenya's Vision 2030, SMEs are identified and prioritized as key drivers of growth and development. The vision seeks to make the country the leader in East and Central Africa in innovation, GDP growth, employment creation, and technology. The manufacturing sector has always played a significant role in the Kenyan economy (Muchau, 2013).

Currently, the country has about 7.5 million registered SMEs, which contribute approximately 44% of GDP (Kenya National Bureau of Statistics, 2016). According to the World Bank (2015), SMEs have a high capacity for labor absorption, accounting

for 60%-70% of jobs in most developing countries. The current legislative framework, including the Micro and Small Enterprise Act of 2014, provides guidance on how SMEs should operate (KNBS, 2017). Manufacturing firms play an important role in Kenya's drive toward industrialization and its efforts to eradicate poverty. Innovation is widely recognized as a key factor in increasing productivity and competitiveness. Innovative firms are essential for a dynamic and competitive economy. Innovation is one of the main practices that underpin the survival and competitiveness of firms in a competitive globalized environment (Sheu, 2007; Kiraka, Kobia, & Katwalo, 2013; Lin & Chen, 2007). In Kenya, the SME sector has so far employed about 14.9 million people and contributed 29% to GDP (KNBS, 2016). Kenya Vision 2030, the long-term development blueprint aiming to transform Kenya into a newly industrializing, high-middle-income country, recognizes the role of SMEs in achieving its goals. The Government's Third Medium-Term Plan 2018–2022, which aligns with Vision 2030, considers SMEs a priority area for development. Kenya's Manufacturing Priority Agenda 2019 emphasizes that fostering innovation among SMEs is vital to the Big Four Agenda.

Efforts to make Kenyan manufacturing firms more competitive can help the country achieve its sustainable development goals. In today's volatile business environment, manufacturing firms in Kenya face challenges that undermine their performance, profitability, and survival. Katua (2014) found that owners of manufacturing firms have differing understandings of their contributions to economic growth. Manufacturing firms that do not embrace continuous innovation to boost their competitiveness risk their long-term sustainability. This poor performance could slow economic development, as outlined in the Vision 2030 strategic plan, which encourages the adoption of innovative practices. The Kenyan Vision 2030 (RoK, 2008) envisioned a vibrant manufacturing sector as a key driver of industrialization by 2030. The Economic Survey of Kenya (2016) indicates that the informal sector continues to provide the majority of new jobs. The report states that the informal sector created over 700,000 new jobs in 2015, accounting for about 85% of all new jobs in the country.

1.1.4 Entrepreneurial Innovation in Food and Beverage Manufacturing Firms

Entrepreneurial innovation involves generating, accepting, and implementing new ideas, processes, products, or services within an organization. It is defined as introducing new or improved processes, products, or services based on new scientific or technological knowledge and/or organizational know-how (Ndesaulwa & Kikula, 2016). In enterprises, entrepreneurial innovation takes various forms, including new products or services, new production processes, innovative marketing techniques, and new organizational or managerial structures. It may also involve technology, intellectual property, business, or physical activity. An invention is the first occurrence of an idea for a new product or process, whereas innovation is the act of putting that idea into practice.

Davila and Robert (2016) provide a detailed and frequently cited definition of innovation: Innovation is a multi-stage process in which organizations turn ideas into new or improved products, services, or processes to advance, compete, and stand out in their marketplace. Storey (2018) suggests that conceptualizations of entrepreneurial innovation are closely linked to its purpose, since it is not an end in itself. Therefore, much of the understanding must be inferred from its objectives. Innovation is the specific tool of entrepreneurship; it is the act that gives resources the ability to generate new wealth. In fact, innovation itself creates a resource.

Entrepreneurial innovation can take various forms across products, services, production processes, and management systems within an enterprise. Product and service innovation involves R&D and meeting customers' needs. Process innovation entails changes to machinery and other elements not directly linked to employees to boost productivity, including improvements in quality and cost reduction. Small and medium enterprises are considered a key force in the economy because of their many contributions, such as technological innovations, job creation, and export growth (Thomas, Clark & Gioia, 2017). Entrepreneurial innovation is essential for the growth of manufacturing companies, as it gives them a competitive edge in the industry. Technological innovation plays a strategic role in helping firms gain a competitive advantage and access new markets. Bustos (2020) notes that a firm's ability to innovate

varies greatly depending on its sector, size, focus, resources, and the business environment where it operates.

1.1.5 Firm Size

Firm size contributes to achieving economies of scale because of the large quantities involved. During the international entry phase, economies of scale serve as a key source of competitive advantage. A company often uses its domestic production base to lower average unit costs by increasing production volumes. The firm-specific advantage in the theory of the multinational corporation (Hymer, 2016) suggests that larger firms have greater capabilities and higher sales volumes abroad.

According to Ito (1997), there is an inverted U-shaped relationship between company size and export intensity. Schlegelmilch and Crook (2018) found a nonlinear relationship between firm size and export intensity, indicating a negative correlation beyond a certain export level. One explanation is that beyond a specific export threshold, firms transition to the next stage of international involvement, such as foreign direct investment (FDI). Company size can serve as a proxy for a firm's resourcefulness, particularly in stimulating foreign sales (Sousa et al., 2018). In their meta-analysis of 52 papers, Sousa *et al*. (2018) suggest that the relationship between firm size and export performance remains unclear, as empirical research on the connection between firm size and export intensity yields mixed and conflicting results. Overall, there appears to be only a weak correlation between firm size and exports. In this research, we assume that the likelihood of a firm exporting increases with its size and age. The positive relationship between firm size and export behavior is often considered well established. However, many studies on this topic have produced inconsistent findings. Most confirm a positive and statistically significant relationship, while some find no significant link, and others suggest a negative association between firm size and export performance.

Sometimes, the source of competitive advantage can come from within the firm (Gabbitas & Gretton, 2022). When analyzing organizational resources, which may include firm size, certain managerial skills turn financial and physical assets into capabilities that create barriers to entry. From this perspective, firm size influences

export performance (Majocchi *et al*., 2019). Many researchers argue that small firms export a smaller share of their sales due to factors such as limited resources, economies of scale, and a high perceived risk in international activities (Bonaccorsi, 2022).

Economies of scale help explain the rise in international competitiveness. Larger firms can lower average production costs (cost per unit of output) as their output increases, and they typically have lower average costs per unit than smaller firms. They can also gain from economies of scope, making them more efficient at producing a variety of related products or engaging in different activities than separate firms (Gabbitas & Gretton, 2021). Additionally, larger firms can benefit from investments in R&D, risk-taking, and their capacity for price discrimination (Patibandla, 2016). However, firm size alone does not ensure higher export intensity. Beyond a certain size, firms may opt to pursue foreign direct investment. Firms with high export intensities can reduce overall costs and avoid trade restrictions imposed by foreign governments (Schlegelmilch & Crook, 2018).

Other studies, such as Kalafsky (2019), suggest that economies of scale are less important than competitive strategies, including product quality and innovation. Small firms can also achieve economies of scale by focusing on exports and developing extensive export relationships, thereby reducing transaction costs and leading to higher export intensities (Verwaal & Donkers, 2022). Smaller firms should not be viewed as less competitive; they possess distinct competitive advantages. Their strengths often include unique products or advanced niche technologies, although they tend to be less competitive in marketing than larger firms (Moen, 2019).

Determinants such as innovation and R&D are important for export success, but their roles differ across industries (Wagner, 2021). Smaller firms can also succeed internationally if they build comprehensive relationships with their trade partners and pursue strategies such as developing products for these markets (Kalafsky, 2020). Verwaal and Donkers (2022) use the size of the export relationship as a primary predictor of export intensity, regardless of firm size. Smaller firms are often seen as quicker and more flexible than larger ones due to structural simplicity; therefore, efficient adaptation can provide them with a competitive advantage in responding to

the specific requirements of foreign buyers as export relationship size increases. Babakus et al. (2016) used firm size as a control variable in their study of export performance because it is a measure of a firm's resource base, which can confound established relationships and influence the level of interactions and cooperation among firms. Thus, the model includes firm size (measured by the number of employees) as a control variable to better delineate the proposed relationships. Firm size can be measured by different proxies, such as the number of employees, sales volume, the ratio of sales employees, assets, and investment level in R&D. Sousa et al. (2018) highlight the geographic factor in firm size across studies: the meaning of the terms 'small', 'medium', and 'large' varies greatly in an international context.

Firm size is one of the most acknowledged determinants of a firm's profits, and its effect on competitive market power in a given industry has shown that a positive relationship exists between firm size and Firm performance (Geringer et al., 2020). Piercy, Kaleka, and Katsikeas (2018) examined the relationship between firm size and export performance and found that firm size positively affects export performance. However, other studies report that export success is not significantly influenced by firm size, as noted by Diamantopoulos & Inglis (2018), or is modestly or conditionally influenced by size (Ussahawaninitchakit, 2017). Ussahawaninitchakit (2017) argues that innovation efforts impose financial constraints that may lead to a trade-off between innovation and export performance. As such, Freel (2016) observes that innovation may be less important for firms operating in environments where competition is not intense, and therefore resources intended for innovation can be directed towards promotional efforts and other firm activities.

1.1.6 Competitiveness of Food and Beverage Manufacturing Firms

Competitiveness as the ability of a firm to successfully compete in a given business environment and this is dependent on innovation and ability to change. For the firms to remain relevant in national development, they need to implement strategies that will enable them to develop and sustain their competitiveness. Competitiveness is the ability of an enterprise to increase its market share, profit and growth while sustaining it's position in the market for a period of time. Growth and performance of firms

globally is associated with innovation due to the firm competitiveness that results from innovations

Competitiveness implies both profitable current operations while at the same time continuously repositioning key factors so as to have firms respond to and anticipates the actions of competitors (Jara & Escaith, 2022; Halkos & Tzeremes, 2020). Consistent with this proposition, the Global Competitiveness Report 2013 – 2014 (WEF, 2018) points out that competitiveness is not a static process, but keeps shifting to higher intensity, where firms begin to rapidly develop new advantages while at the same time, attempting to neutralise the competitor's advantages. This results in a further escalation of competitive rivalry into a hyper-competition at which level companies actively work to put together series of temporally and long-term moves that undermine competitors in an endless cycle of jockeying for positions (Banjoko, et al., 2022). Ten years before the commencement of the 21st Century witnessed increased change in technology, political and social spheres, occasioning structural adjustments in economic systems and the configuration of enterprises, their relationships with each other and with the environment (Vives, 2018). This has over the years continued to result in the moving and blurring of industrial boundaries, and the entry of new competitors from around the world (Tuan & Yoshi, 2019).

Due to globalisation and increased interconnectedness through information technology, business enterprises are now able to have a richer and efficient inter and intra firm connectivity, resulting in opportunities for information sharing. On the other hand, the degree of risk and uncertainty has increased, thus making it more challenging to make forecast (Abiodun, 2011). Due to the interplay of several factors, no business can consider itself immune from an increasingly aggressive and challenging competitive environment (Brinkmsnn, et al., 2010). Consequently, both large and small firms must quickly adapt to competitive pressures.

As observed by Ayyagari, et al., (2016), entrepreneurs must link their organization's unique capabilities to varying types of strategies over a period of time. SMEs must for instance learn from their environment about how to survive the variations in competitive conditions that shape the character of success (Tuan & Yoshi, 2018). One of the business aspects that require continuous repositioning so as to hold some

advantage relative to competition is in the area of effective management of human resources (Liesch, et al., 2012; Storey & Westhead, 2007). This encompasses the strategic sourcing, training, guiding, directing, motivating, compensating, appraising, rewarding, and generally enabling the activities of employees in an enterprise. Evans (2003) elaborated Peter Drucker's observation that the management of an enterprise mainly revolves around people and capital allocation decisions. However, functional areas in an enterprise are useless without people. Though financial resources may be important to the success of an enterprise, they mean nothing unless effectively managed by people (Oyer & Schaefer, 2010).

According to Kiraka et al.,(2013)SMEs need to raise their efficiency, diversity, and produce quality products and services while responding timely to market changes. Innovation is widely acknowledged as a core factor in firm competitiveness, survival and growth. According to Kenya Association of manufacturers(KAM), 2017, presence of innovations, inventions and modifications, are signs of growth and performance. The International Trade Centre (ITC), Kenya National Chamber of Commerce and Industry (KNCCI), and Kenya's Ministry of Industry, Trade and Cooperatives (MITC) share a common vision to build SMEs competitiveness so that they can access more local, regional and international markets. Manufacturing firms support all sectors of Kenyan economy and contribute significantly to income generation and industrialization. Innovativeness in manufacturing firms indicates tendency to support new ideas, novelty, experimentation, and creativity process.

This means departing from established practices and technologies(Abouzeedan, 2011).The Government's Third Medium-Term Plan 2018-2022 towards achieving Kenya Vision 2030 recognizes the SMEs sector as a priority area for development. Competitiveness is demonstrated by the ability to design, produce and commercialize an offer that fully, uniquely and continuously fulfils the needs of targeted market segments. The importance of competitiveness in driving firm survival, growth and trade make it vital to economic development. Kenya's manufacturing Priority Agenda 2019, recognizes that fostering innovation among firms is essential to realize the manufacturing targets of the Big Four agenda. Efforts to make SMEs more competitive can help the country achieve its sustainable development objectives.

1.1.7 Food and Beverage Manufacturing Firms in Kenya

According to the Kenya Association of Manufacturers KAM, (2022) there are a total of 403 food and beverages manufacturing companies in Kenya registered with the Kenya Association of Manufacturers. Manufacturing firms in Kenya are made of both multinational and local firms and a large number of them are based in Nairobi County where the Country capital city is located (KAM, 2017). Examples of multinational firms include Guinness PLC which partners with East African Breweries Ltd and Diageo Group to make and supply bottled beer to the South and East Africa markets, Coca cola, Del Monte, Kurusu food products etc. which are engaged in beverage production (Okello, 2010). Examples of local companies include, Unga limited, Kenya breweries limited and Bidco Africa Ltd.

Food processing consists of multiple value chains beginning with agricultural production and reaching into domestic, regional, and global markets. Beverage or drink processing firms are concerned with products ranging from drinking bottle alcohol, non-alcoholic drinks, bottled water, fruit or vegetable juices and soft drinks (carbonated drinks).Apart from forming part of the culture of the society, drinks also fulfill a basic need. In published statistics food processing is grouped with beverage and tobacco, and the combined total in 2008 was Kshs 58.6 billion, or about 2.8% of GDP (Mutinda, 2017).

Due to the large dependence of the Kenyan economy on agriculture for its manufacturing sector, the food and beverage industry is a very vital industry in Kenya. Agricultural products that have value being added and foods that are processed whose preparation is quick and simple have demand created by the above together with the influx of people in urban areas. The firms have been driven by this demand into vigorous struggle for sustainable competitive advantage. Work is being done by many food and beverage industries to improve their environmental performance and goods and a logical extension of this work has been green supply chain management. The organizations have adopted green supply chain management practices like public buyers for various goods such as paints, paper used in the office, cleaners and renewable energy. Green supply chain management practices that encompass a large

range of goods, services and issues of the environment have also been developed by a few others (Soosay, Fearne, & Dent, 2016). These efforts become better known as the business grows, green supply chain management is industry advancing

Food and beverage industry in Kenya is a basic productive sector singled out for development and expansion of the economy thus it has enormous possibilities for creation of employment, reducing or eradicating poverty and creation of wealth. The sector continues to positively contribute towards accomplishment of Millennium Development Goals in the intermediate and far reaching term especially the aim of goal eradicating hunger and extreme poverty and the goal of Development and Global Partnership. The largest component of the Kenyan manufacturing sector remains to be sector that processes food which is food, beverage and tobacco.

So as to supply the domestic and neighbouring markets, operations in Nairobi have been established by major multinationals either as companies that are foreign owned or Kenyan shareholding that are joint ventures. An example is Guinness PLC partners with East African Breweries Ltd and Diageo Group to make and supply bottled beer to the South and East Africa markets. The same high standards of products well known around the world are produced by this company. There are other companies such as Coca cola, Del Monte, Kurusu food products etc. that are engaged in beverage production (Okello, 2010). The food manufacturing industry in Kenya has been experiencing a lot of turbulence in the recent past including a drop in the GDP, an increasing imbalance of trade and the exiting of large multinationals (Magutu, Aduda & Nyaoga, 2017). Therefore, proper analysis and improvements in the value chain would lead to greater benefits

1.2 Statement of the Problem

Manufacturing firms are vital to national economies, promoting industrialization, income generation, and employment in both developed and developing regions. In this sector, food and beverage producers play a particularly important role: in Kenya, where agriculture underpins much of the manufacturing industry, these companies fulfill basic needs while fostering socio-economic development. In 2017, food processing (including beverages) contributed Ksh 58.6 billion, or 2.8% of GDP

(Mutinda, 2017), highlighting the sector's macroeconomic significance. However, the operating environment has become more unpredictable. Global competition, rapid technological advancements, liberalized markets, infrastructure challenges, and limited market access have increased pressure on firms. In Kenya, these issues have coincided with periods of GDP slowdown, widening trade deficits, and significant withdrawals by multinationals (Maguta, Aduda & Nyaoga, 2017), reducing the sector's productivity and its impact on growth (Alpkan, 2016).

In such conditions, competitiveness and firms' ability to design, produce, and commercialize offerings that meet targeted market needs have become crucial. Entrepreneurial orientation and innovation (product, process, marketing, organizational) are widely seen as key drivers for maintaining advantage (Teece, 2007; Fathali, 2016; Cassiman, Golouko & Martinez Ros, 2020). However, empirical results remain mixed. Some studies show weak or no effects of innovation on performance or competitiveness (Kiss, 2021; Terzioski, 2020), while others demonstrate clear positive relationships (Mensah & Acquah, 2015). Even within Kenya's food and beverage sector, evidence varies: Nafula (2017) finds that process, marketing, organizational, and combined innovations significantly enhance competitiveness, while product innovation is statistically insignificant ($\beta = 0.19$, $p = 0.834 > 0.05$). Related research on SMEs in Nairobi City County highlights the importance of pricing and perceived value in marketing innovation for maintaining competitiveness (Njeri, 2019). These differences create practical uncertainty for managers and policymakers trying to allocate limited innovation resources to achieve Vision 2030 and broader sustainable development goals.

Despite the important economic role of Kenya's food and beverage manufacturing companies and the believed significance of entrepreneurial innovation, there is limited, inconsistent, and sector-specific empirical evidence showing which types of innovation—product, process, marketing, or organizational—most effectively enhance competitiveness under Kenya's unpredictable market conditions. Existing studies show mixed results across various innovation areas, are often narrow in scope (for example, focusing on a single county or only SMEs), and provide conclusions that are difficult to generalize for strategic investment and policymaking. As a result,

managers and policymakers lack clear, evidence-based guidance on where to focus innovation efforts to sustain and increase competitiveness in this high-stakes sector.

To address this issue, the current study empirically examines the different effects of product, process, marketing, and organizational innovation on the competitiveness of Kenyan food and beverage manufacturing companies, clarifying which innovation pathways are most crucial in this context and thus guiding firm strategies and policy priorities.

1.3 Objectives of the Study

1.3.1 General Objective of the Study

To establish the influence of Entrepreneurial Innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.

1.3.2 Specific Objectives of the Study

i. To assess the influence of product development innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.
ii. To establish the influence of process innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.
iii. To determine the influence of marketing innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.
iv. To determine the influence of organization innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.
v. To explore the moderating role of the firm size on the influence of entrepreneurial innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.

1.4 Research Hypothesis

H_{01}: There is no significant influence of product development innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County, Kenya.

H_{02}: There is no significant influence of process innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.

H_{03}: There is no significant influence of marketing innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.

H_{04}: There is no significant influence of organization innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.

H_{05}: There is no significant moderating role of firm size on the influence of entrepreneurial innovation and competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County in Kenya.

1.5 Justification of Study

The closure of Food and Beverage Manufacturing Firms results in both financial and non-financial losses. Consequently, their failure within three years of inception harms the Kenyan economy (KNBS, 2016). This study investigated the influence of entrepreneurial innovation on the competitiveness of Food and Beverage Manufacturing Firms and aimed to promote their survival and growth. The study also made significant contributions to the following audiences.

1.5.1 Economic Development Policy Makers

This study may improve understanding of entrepreneurial innovation practices in manufacturing firms in Kenya and how they affect the competitiveness of these firms. Policymakers in the Ministry of Trade and Communication could use the study's recommendations to develop policies that promote innovation among food and beverage manufacturing companies. This is crucial for providing valuable knowledge to practitioners, owner-managers, entrepreneurs, and government agencies such as

Kenya Intellectual Property Institute (KIPI), the National Commission for Science, Technology & Innovation, and the Ministry of Industrialization and Enterprise Development (MOIED). The findings will guide the creation of relevant and effective policies and programs in enterprise development, emphasizing the use of innovation to stimulate growth and foster innovation.

Policymakers will use this knowledge to gain insights into the impact of entrepreneurial innovation and how manufacturing firms can adopt these practices. They will be able to review and develop policies that guide and accelerate the growth of the manufacturing sector. The study results will benefit both the national and county governments because they will understand how to help improve the business structure and environment where manufacturing firms operate. It will be helpful to them because they will gain a better understanding of manufacturing firms' operations and have a solid reference for creating effective policies to enhance the financial performance of manufacturing ventures. This will assist in defining or establishing policy regulations and guidelines for the manufacturing sector overall.

1.5.2 Manufacturing Firms Owners and Practitioners

The practitioners, owner-managers, and entrepreneurs of manufacturing firms will gain a clearer understanding of entrepreneurial innovation practices and how they influence competitiveness. They can adopt innovations to improve their productivity and capabilities. The results of this study will benefit the Nairobi and Kenyan business communities, both potential and existing, as they develop long-term strategies to increase performance and competitiveness. For individual entrepreneurs, the research outcomes will serve as a guide to the key factors in establishing and managing successful businesses. Entrepreneurs will recognize the importance of innovation in fueling success within a highly competitive global business environment. Stakeholders such as investors, NGOs, IGOs, and other development partners can use the findings to create concrete proposals to enhance the current credit facilities offered by the GOK and other financial institutions.

1.5.3 Researchers and Academicians

The study aims to inform subject scholars about how entrepreneurial innovation influences the competitiveness of manufacturing firms, particularly in the context of food and beverage manufacturing companies operating in Nairobi County. The findings will serve as a foundation for using innovation to boost firm competitiveness by contributing to empirical knowledge and the research framework within the manufacturing sector on competitiveness and innovation. Additionally, the study may expand the existing body of knowledge in the areas of innovation and firm competitiveness, providing future researchers and academic institutions with a valuable resource to identify further research gaps.

1.6 Scope of the Study

The study aimed to assess how entrepreneurial innovations affect the competitiveness of food and beverage manufacturing companies in Kenya, focusing on a survey of Nairobi City County. The target population included food and beverage manufacturing firms in Nairobi City County. The county was selected because it is a leading hub for innovation, hosts most manufacturing companies, and is an investment center (Kenya Information Guide, 2015). Nairobi City County is where many enterprises from different sectors are concentrated. It serves as the main gateway to East and Central Africa and is a key economic center in the region. Additionally, Nairobi City County is a major trading hub that provides a favorable environment for both local and international businesses. It is home to large industries, which make up about 80% of the country's total industries.

According to the Micro, Small, and Medium Enterprises (MSME) Basic Report (2016), Nairobi City County has the highest proportion of SME establishments at 14.8%. Nairobi City County is one of the largest and fastest-growing cities in Africa, serving as the primary administrative, economic, and cultural hub. The predictor variables examined include product innovation, process innovation, market innovation, and organizational innovation. According to the Global Competitiveness Report (2011-2012), Kenya's innovation capacity ranks 52nd out of 142 economies. The moderator variable is firm size, with the competitiveness of food and beverage

manufacturing firms as the criterion variable. The selection of predictor variables was based on earlier studies that highlighted their importance in enhancing the competitiveness of manufacturing firms in Kenya (Kiraka, Kobia & Katwalo, 2015; Jabeen, Faisal, Al Matroushi Farouk, 2019). Nairobi City County also has the highest share of employment in SMEs, accounting for 27.8% of the 14.9 million people engaged in SMEs. The unit of observation will be the 403 licensed SMEs in the Central Business District (Nairobi City County, Licensing Department, 2022).

1.7 Limitations of the Study

Trust and confidentiality concerns among some informants limited disclosure. To address this, the study was restricted to collecting anonymized responses with no personally identifiable information and reporting only aggregate results at the organizational level; participation was only allowed under these protocols, which increased honesty but reduced the detail of attribution.

Some target agencies were situated in hard-to-reach areas, which limited primary data collection. As a result, the study focused geographically and logistically on agencies that were reasonably accessible and secure during the field period; extremely remote sites were excluded from in-person data collection and, if necessary, covered through telephone interviews or secondary documents, thereby narrowing the generalizability to accessible agencies.

Some prospective respondents were too busy to complete the questionnaires, resulting in non-response and incomplete returns. To address this, the study used a short, mostly structured instrument delivered through convenient modes (in-person, phone, online) and only included responses received within the designated fieldwork period; questionnaires that met a specific completeness threshold were used in the analysis, emphasizing data quality over sample size.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the theoretical and empirical literature along with the developed conceptual framework that guided the study. Relevant theories were reviewed to outline the foundation underlying the concepts of innovation and competitiveness. These include Schumpeter's Theory of Innovation and Entrepreneurship, Theory of the Innovative Firm, Dynamic Capabilities Theory of Innovation, Resource-Based Theory, and Knowledge-Based Theory of the Firm. The literature review encompassed the concept of innovation, its various types, measures, and their impact on firm competitiveness. The empirical literature focused on innovation and competitiveness. The chapter concludes with a summary of the theoretical and empirical reviews, identifying the knowledge gap. Based on the reviewed literature, a conceptual framework will be developed and presented.

2.2 Theoretical Literature Review

2.2.1 Schumpeterian Theory of Innovation and Entrepreneurship

The theory is part of the innovation-based endogenous growth models introduced by Joseph Schumpeter, a prominent economist of the twentieth century. According to Ngugi (2013), Schumpeter (1934) was an early advocate of the importance of innovation in entrepreneurial activity. The theory explains the roles of entrepreneurship and innovation in economic growth. It indicates that economies and markets go through a continuous process of change. In such a dynamic economy, a force within the system drives change and growth, represented by the entrepreneur. Schumpeter describes the entrepreneur as "an agent of innovation and pivot of change," involving creative destruction, which disrupts existing market structures through new goods and services, new processes, and organizational innovations.

According to him, in a changing world, innovation and entrepreneurship are essential for economic growth. Entrepreneurship is centered around innovation, and

entrepreneurs' role is to combine factors of production in new ways, leading to disruptive and radical change that underpins economic development. Innovation is the primary tool for entrepreneurs, allowing them to turn change into opportunities for different services. Schumpeter attributes economic development to innovation, which may include; “the launch of a new product or modification of an already existing product; the application of new methods of production, opening of a new market; use of new sources of supply or raw materials, and the creation of a new industry structure” (Schumpeter, 1934). He views innovation as a “process of industrial transformation, responsible for transforming the economic structure through what he calls ‘creative destruction’.

According to the theory, innovations lead to economic growth, and the entrepreneur is the one who innovates. The entrepreneur is responsible for allocating existing resources to new uses and developing new combinations. Schumpeter views entrepreneurship as one of the unique factors of production that contribute to economic change. According to the theory, entrepreneurs change or transform the mode of production by exploiting an invention, opening up a new source of supply of materials, finding a new outlet for products, or reorganizing an industry (Schumpeter, 1939). Innovation is thus a specific tool that entrepreneurs use to create opportunities for different products or services. Schumpeter (1928), cited by Baba, Omwenga, and Mung’atu (2018), argued that entrepreneurs can create opportunities for new profits through their innovations. Innovation aims to create new processes or products that give the creator a competitive edge over rivals by making previous innovations obsolete (Mwangi & Ngugi, 2014). The main reason for business growth in both profits and investments is innovation. Schumpeter argued that firms seeking profits need to innovate because entrepreneurial innovation results in increased profits. He considered innovation a driver of firm competitiveness and economic development (Schumpeter, 1942). In entrepreneurship, innovation provides a holistic, vibrant, and complementary foundation for entrepreneurial conduct, leading to an organization’s sustainability and superior performance. For economic development to occur, entrepreneurs must innovate, leading to the process of creative destruction that creates value. The theory also examines various types of innovation that can be used to generate value (Schumpeter, 1934). Based on Schumpeterian theory, innovation is the

foundation of competitiveness and sustained economic growth. It offers a better understanding of how innovation influences a firm's competitiveness and, consequently, its performance. This theory is applicable in this study because sustained innovations across various investments may lead to competitiveness. It recognizes the usefulness of innovation in predicting the overall performance of firms.

2.2.2 Theory of the Innovative Firm

This theory was proposed by William Lazonick, an economist, to explain superior performance despite imperfect markets. According to the theory, a firm's role is to transform productive resources into goods and services for sale. It does this through innovation. Therefore, superior economic performance occurs when innovative companies create higher-quality products at lower costs (Lazonick, 2013). Innovative firms can turn productive resources into better, cheaper goods and services, benefiting customers and other market participants (Lazonick, 2009). These firms compete through innovation rather than by adjusting prices and quantities. As innovation economics shows, simply increasing inputs in the production process no longer fully explains rising output; instead, it is due to a firm's innovation efforts (Lazonick & O'Sullivan, 2000; Lazonick, 2006). To stay competitive, innovative firms invest in quality and productive resources. This helps them develop superior products, services, and more efficient production, organization, and marketing methods (Lazonick & O'Sullivan, 2000). In the short run, an innovative firm isn't limited by higher costs; it produces high-quality products, lowering unit costs and gaining market share (Lazonick & O'Sullivan, 2000). Innovation allows firms to gradually enter different market segments based on the economic power of buyers. This lays the groundwork for developing the capabilities to access other segments (Lazonick, 2013). Plus, innovative firms can differentiate themselves by offering unique products and services, helping them compete effectively.

This theory applies to this study because it presents a possible strategy for competitiveness. SMEs that strategically focus on innovation tend to grow faster early on than their non-innovative counterparts. Strategies that respond quickly to potential competitors help avoid direct competition with larger firms. This speeds up new

product development, lowers costs, and aims to increase customer value, leading to positive growth (Obeng, Robson & Haugh, 2014). However, firms with weak strategies often face growth challenges such as low productivity, risk vulnerability, difficulty in establishing systems, and limited business skills (Business Consulting Team and Intellecap, 2015).

2.2.3 The Resource-Based Theory

An influential theory in innovation and competitiveness studies is the Resource-Based View (RBV), originally introduced by Penrose (Penrose, 1959) but expanded upon by others (Wernerfelt, 1984; Barney, 2002; Teece et al., 1997). The theory argues that firms own resources they can use to enhance their competitiveness. It suggests that a firm can achieve a competitive advantage by possessing distinctive resources or capabilities that are valuable, difficult to imitate, and rare in the marketplace (Baa et al., 2011). Advocates of this perspective contend that organizations should focus on organizing internal sources of competitiveness rather than relying on external factors (Barney, 1995; Barney, 2002; Teece et al., 1997). According to RBV proponents, it is often more practical to leverage existing resources in new ways to exploit external opportunities than to acquire entirely new skills for each opportunity. Resources and processes within a firm are vital because they influence its behavior and activities. A resource can be an asset, competency, organizational process, information, knowledge, or capability, and is deemed to be unique if it is valuable, rare, difficult to imitate, and has no close substitutes (Barney, 2002).

It is the distinctive resources that lead to sustained competitiveness and superior returns in firms (Wernerfelt, 1984; Barney, 2002; Teece et al., 1997). A firm is considered a coordinated bundle of resources that can be exploited for sustainable competitive advantage by the firm (Barney, 1995). Firm resources are assets connected semi-permanently to it and include human, social, technological, knowledge, physical, and financial assets (Barney, 2002). Firms with valuable resources that are rare and not easily copied achieve a sustainable competitive advantage through innovative new products (Trott, 2008). Organizational resources positively influence the innovation process by providing the inputs that are combined and transformed to produce

innovations, which lead to firm competitiveness (Trott, 2008). Managers need to identify the key resources and drivers of performance and value within their organizations. Innovation enables a competitive advantage by delivering outputs that are valuable, rare, and difficult to imitate (OECD, 2009). Financial resources are among the most crucial assets a firm can utilize to support innovative activities, especially research and development. Similarly, human capital is a key determinant of firm performance and competitiveness. Another vital resource for a firm's competitiveness is knowledge-based resources. Knowledge facilitates the discovery of ideas and the exploitation of opportunities for innovation; it is thus useful for manipulating, transforming, and developing other resources for competitiveness (Dzisi & Ofosu, 2014). This theory informs the study of another factor influencing competitiveness: firm resources that affect a firm's activities, including innovation. Firm resources shape a firm's behavior and how it competes in the market. Resources that are unique, distinct, rare, and difficult to imitate give a firm a competitive edge. The theory states that a company's competitive advantage comes from its ability to assemble and exploit an appropriate combination of resources. It asserts that internal resources are crucial for enhancing a firm's competitive performance (Rowley & Jones, 2011). The theory explains that both tangible and intangible resources, along with the ability to innovate, can be harnessed to achieve competitiveness (Samad & Aziz, 2016). Innovative strategies allow firms to dedicate their limited resources to initiatives that have the greatest impact on performance (Fathali, 2016). This theory is based on the idea that the effective and organized utilization of all available resources helps determine a firm's competitiveness.

2.2.4 The Dynamic Capability Theory

It was put forward by Teece and Pison (1994). The theory explains how firms achieve and sustain competitiveness based on the processes that take place within a firm to adapt to the dynamic, volatile environment. Davidsson (2015) stated that it is the ability to attain a new way of competitive advantage through flexibility. The dynamic capability paradigm encompasses entrepreneurs, innovation, organizational learning, knowledge, and change management (Teece, 2010). The ability of a firm to adjust to market changes through innovation is crucial for maintaining competitiveness. It is

argued that the fundamental impulse driving capitalism stems from the innovation of new products, new methods of production, new markets, and new forms of industrial organization (Schumpeter, 1942). Dynamic capability refers to a "firm's capability that allows it to develop new products and processes in response to dynamic market situations" (Teece & Pisano, 1997).

Dynamic capabilities include skills, procedures, organizational structures, and decision rules that firms can use to create and capture value. They help the firm align its distinctive resources and competencies with the changing business environment. These capabilities are critical for the long-term profitability of firms (Teece, 2007). They enable a firm to organize its resources, competencies, and assets profitably to sustain itself in changing environments and markets (Teece, 2009). The capabilities are especially important in rapidly changing environments, such as growing industries (Teece, 2007, Teece, 2009). Innovation is recognized as one of the key firm capabilities that influence sustained competitive advantage and superior performance (Carson & Gilmore, 2000).

Innovation capability enables firms to utilize current resources, products, processes, and systems, as well as develop new ways of using new resources to gain a competitive advantage (Teece & Pisano, 1997). It can be enhanced through learning, training, the research and development (R&D) process, firm organization, and collaborations with other players, including customers, suppliers, public and research institutes, and industry associations. Possessing dynamic capabilities also signifies a firm's ability to solve market problems and achieve a new and innovative form of competitive advantage (Teece, etal., 2007). This approach emphasizes a firm's capacity to renew competencies and to integrate and configure resources to adapt to and create market change through innovation (Teece & Pisano, 1997; Eisenhardt & Martin, 2000).

This theory informs the study of the relevance of a firm's dynamic capabilities, which are crucial for achieving competitiveness in a constantly changing and volatile environment. Manufacturing SMEs operate in such environments, and developing their dynamic capabilities, including innovation, is essential for their survival and growth. The dynamic capability approach reflects a firm's ability to solve market

problems and attain competitiveness (Teece et al., 1997). The concept of dynamic capabilities offers a broader framework to understand how firms create value for competitiveness in dynamic environments. This is important due to changing customer needs, products, technology, and the competitive forces of other firms, which can threaten a firm's current position or open the possibility of a new or improved one. It relates to how organizations adapt and develop heterogeneous resource positions in dynamic settings. Present firms face increased challenges due to hyper-competitive environments, and failure to address these challenges can negatively impact a firm's competitiveness (Kiveu & Ofufa, 2013). The theory identifies innovation as a resource that contributes to competitiveness in SMEs. It provides a deeper understanding of the innovations needed to survive in hyper-competitive environments and cope with technological shifts. The theory is applicable in this study because the value of dynamic capabilities lies in reorganizing the resources of SMEs and developing individual capabilities within the organization. It shows that through innovation, SMEs can rapidly compete in changing business environments. Failing to address dynamic environmental changes can negatively affect an organization's performance (Kiveu & Ofafa, 2013). Dynamic capability is especially relevant in a Schumpeterian world of strategic innovation-based competition, performance rivalry, increasing returns, and the creative destruction of existing competences (Kamau, 2020).

2.2.5 Knowledge-Based Theory of the Firm

This theory was initiated by Penrose (1959) and later expanded by Barney (1991), Wernerfelt (1984), and Conner (1991). The theory views knowledge as the most crucial factor for a firm. According to Grant (1996), knowledge is the key driver of innovation. It is one of the main determinants of a firm's sustained competitive advantage and superior business performance. This knowledge exists at various levels, such as organizational identity and culture, policies, routines, and employees. The primary goal of a firm is to apply existing knowledge to produce goods and services.

A firm gains a competitive advantage through the use of knowledge and skills because it can innovate new processes and products or improve existing ones to be more efficient and effective. Nonaka and Takeuchi (1995) highlight this, while Grant (1996)

considers knowledge a universal resource, implying that a lack of superior knowledge hampers a firm's ability to develop new products and services, thereby limiting its competitiveness in the market. This theory is relevant to this study because knowledge is an intangible resource that plays a vital role in the firm and positively impacts its competitive position. The global economy is experiencing the effects of rapid globalization and liberalization, along with the influence of information and communication technology (ICT). As a result, modern knowledge and skills are essential for adopting innovations within firms. According to OECD (2015), a skilled and knowledgeable workforce can generate new ideas and technologies, which are then brought to market, implemented in the workplace, and adapted to structural and technological changes. This process helps firms grow, increase their market share, and achieve higher levels of production and competitiveness.

SMEs have recognized the need for increased competitiveness through ongoing innovation in today's competitive business environment (Bastian Sidai El Al Amine, 2018). Markets are constantly changing, competition is intensifying, customer behaviors and needs are evolving, and globalization is a major factor—all challenges faced by food and beverage manufacturing firms. Enterprises adopt innovative business practices to stay aligned with this turbulent business landscape (Hajar, 2017).

2.3 Conceptual Framework

A conceptual framework is a diagrammatic representation that illustrates the relationship between independent and dependent variables in a study. Mugenda and Mugenda (2003) define a conceptual framework as a concise description of the phenomenon under investigation, complemented by a visual or graphical depiction of the main variables. This study will illustrate how the independent variables—product, process, market, and organizational innovations—impact the competitiveness of food and beverage manufacturing firms in Nairobi County, Kenya, as shown in Figure 2.1.

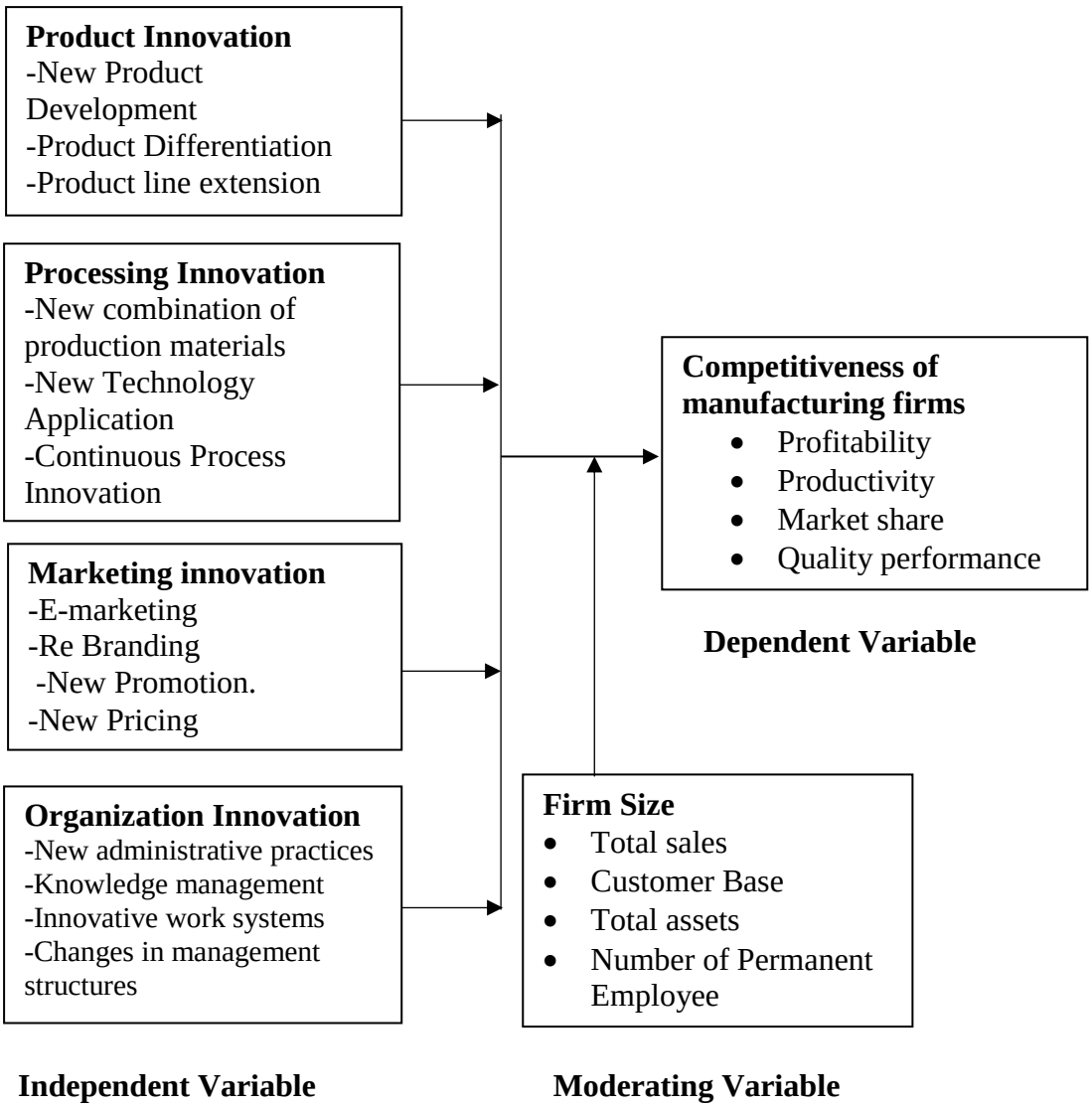

Figure 2.1: Conceptual Framework

2.4 Review of Literature on Variables

2.4.1 Product Innovation on the Competitiveness of Food and Beverage Manufacturing Firms

The effect of development on business performance in benefit firms would be more surprising and different from the manufacturing sector (Lin, 2011) due to its intangibility, transience, indistinguishability, and inconsistency. Over recent decades, researchers have been dedicated to identifying the connection between development and firm performance. Analysts have used various financial and non-financial

indicators to analyze business performance; these may include subjective and objective markers. Yıldız et al. (2014) proposed that development positively impacts business performance. According to Oke (2007), innovations related to radical or incremental changes have made a significant contribution to firm performance. It serves as a key determinant of business performance regardless of the market changes in which the firm operates (Hurley, Hult, and Knight, 2005). The development process can be seen as an effective driver for improving the organization's innovation and operational performance (Lendel and Varmus, 2014).

Innovation is increasingly becoming the most important element in creating and maintaining a competitive advantage in a rapidly changing environment (Tidd, 2001). The introduction of a good that is new significantly improves its characteristics or intended uses, including notable enhancements in technical specifications, components and materials, software, user friendliness, or other functional features (Rubera & Kirca, 2012; Oke, 2015). A new product involves transformations in an organization's production line, the launch of new products in a market, or the use of new and better materials in the manufacturing process. Saunila (2014) argues that product innovation generally refers to an organization's process of introducing new ideas, products, technologies, workflows, manufacturing methods, services, and distribution or delivery channels. According to Kiraka (2013), a new product serves as a source of competitive advantage for small and medium enterprises by providing improvements and continuous advances that enhance the firm's efficiency, growth, and survival, ultimately leading to superior performance.

It is a key strategic approach for building and maintaining competitiveness in the changing global economic environment. Product innovation is used to develop new products, revitalize existing ones, and address product-related issues and customer difficulties. Product innovation involves the technical design of product features, research and development, and eventually marketing the new products through commercial activities (Kamunyu & Theuri, 2017). As a result, the organization gains a competitive advantage over competitors in the same industry. By offering innovative products and services, Small and Medium Enterprises can boost their competitiveness

by avoiding price wars, creating new demand, and establishing barriers to entry, thus enabling continuous superior performance.

2.4.2 Process Innovations on the Competitiveness of Food and Beverage Manufacturing Firms

Process advancement introduces a new technique for creation, one that has yet to be tested through involvement in the relevant manufacturing sector. It is a process that can also exist simply as managing a product industrially (Schumpeter, 2004). Process development is a crucial aspect for the success of any business. It is an integrated concept that involves changes in the production process aimed at reducing costs, waste, and lead time, or at improving manufacturing efficiency (Terziovski, 2010). Process advancement has an immediate and significant impact on the operational performance of manufacturing companies (Higgins, 2015), and due to their organizational simplicity, manufacturing firms may be able to implement process development more quickly and at lower transaction costs compared to larger firms.

A new or significantly improved production or delivery method involves building on the organization's capabilities to create new products and services (Osuga, 2016). This includes substantial changes in techniques, equipment, and software. The goal of the innovation is to lower unit costs, improve quality, and deliver new or significantly improved products. It enhances efficiency, reduces or eliminates errors, and boosts productivity (Njenga, 2015). The process is adopted to adapt to environmental changes. It involves advances in technology and science with the aim of developing superior products or services that can compete effectively in the market. Firms are compelled to respond and adapt to the constantly changing business environment through innovation to survive competitive pressure. According to Najib (2013), drivers of new processes include industry competitors, customers, finances, opportunities, and culture.

Development exercises can include mechanical delegation, showcasing innovative techniques, obtaining information sources, and enhancing human assets by utilizing experts and training workers (Rajapathirana and Hui, 2017). In this way, real advancements in the garments industry include product, process, marketing,

procurement, mechanical, and managerial innovations. According to Clayton and Michael (2013), process development involves quality assurance implementation and business process reengineering. It is a type of innovation that isn't simple, but its purpose is now well understood. An effective provider continually working on efficiency improvements can, over time, produce products that deliver similar performance at lower costs. These cost savings may or may not be passed on to customers as lower prices. Process development is essential both in delivering the core product and in supporting parts of any offer. Both segments of a supply require quality standards to be maintained and met (Muhammad Ebrahim and Hami, 2014).

2.4.3 Marketing Innovations on Competitiveness of Food and Beverage Manufacturing Firms

The food and beverage manufacturing sector is not an exception to this trend, as technological advancements open up new methods of product delivery and greater opportunities for data collection, which can lead to improved risk identification and mitigation strategies. How the insurance sector responds to economic and societal technological innovations, and implements production processes and policies that incorporate these changes, will be an important development to watch. Food and beverage manufacturing firms achieve market-related outcomes such as increased customer satisfaction, new customer acquisition, and loyalty (Oh, Cho, & Kim, 2014). Marketing concepts generally suggest that superior judgmental performance in areas like product quality, customer satisfaction, and employee satisfaction is a prerequisite for better market and financial performance of these companies. The study by Agrawal, Erramilli, and Dve (2013) also implies that market and financial success cannot be achieved without top-tier judgmental and innovative performance. Market innovation can help food and beverage manufacturing firms generate market success by identifying technological opportunities that enhance product and service quality, offering superior value to customers, and attracting new clients. Consequently, customer satisfaction enhances the market position of insurance companies (Hogan & Coote, 2014).

Innovation performance is primarily related to the non-financial aspects of corporate performance, such as customer satisfaction, and it subsequently accelerates higher financial performance (Gunday, Ulusoy, Kilic & Alpkan, 2011). Although innovation in the short term might cause potential losses, it can lead to positive effects on production, market, and financial performance over the long term (Stock & Reiferscheid, 2014).

Market innovation focuses on improving the selection of target markets and finding the best ways to serve them. Its goal is to identify better (new) potential markets and more effective (new) methods to serve target markets ((Visnjic, Wiengarten, & Neely, 2016). Market segmentation, which involves dividing a total potential market into smaller, more manageable parts, is crucial for maximizing a business's profitability. Inadequate market segmentation can lead to a suboptimal mix of target markets, which means that potential revenues are overlooked or misunderstood (Kongmanila & Yoshi 2009).

Sales and marketing strategies help entrepreneurs stay informed about current trends, needs, product price changes, and how to understand customer preferences (Msoka, 2013). They serve as a way to implement new marketing methods that involve major changes in packaging, design, placement, product promotion, and pricing strategies. Market access can be improved through trade fairs, exhibitions, pamphlets, product catalogs, and the use of social media and websites (ILO, 2012).

According to Kimani (2016), globalization of markets and increased competition push SMEs to seek new, innovative, flexible, and imaginative ways to survive. Firms operating in highly competitive markets are more likely to succeed as innovators by increasing the number of new product introductions through incremental innovation to meet customer needs. Major forms of marketing innovations include new technology or programs that help acquire consumer information, as well as changing individualized prices and implementing new methods of trading that reduce transaction costs for customers.

Market innovation involves significant changes in product design or packaging, product placement, promotion, or pricing. It has led to improved marketing

technologies that enable firms to reach their consumers more effectively. It aims to enhance the mix of target markets and optimize how chosen markets are best served (Robert, 2017). The purpose is to identify new or better potential markets and improved ways to serve target markets. New markets have a positive effect on sales growth (Spilan, Parnell, 2014). These innovations focus on better addressing customer needs and opening up new markets (Adala, Gallego, Roquelaure & Calamel, 2019).

2.4.4 Organization Innovation on Competitiveness Food and Beverage Manufacturing Firms

According to Chege, Wang & Suntu (2020), organization innovation involves all administrative efforts to change routines, procedures, and systems. This innovation aims to improve outcomes by reducing administrative or transactional costs, enhancing workplace satisfaction, gaining access to external knowledge, or decreasing supply costs. Organizations are usually led by founders with limited resources and operate in highly volatile environments. Therefore, success and sustainability require extraordinary effort from the role players, creating a significant need for exceptional leadership capabilities.

Organizations are restructured in a way that enhances organizational performance, leading to higher productivity and competitiveness. According to Barton. (2008), a cluster of organizational innovations includes structural and procedural organizational innovation. Structural innovation affects accountability, responsibility, information flow, and command lines within the organizational structure. Procedural innovation influences routines, operations, and processes both within and between organizations. Effective leadership involves restructuring organizational architecture to motivate employees to initiate value-enhancing organizational performance. Digitization improves the quality of work life and increases productivity (Obeng, Robson, & Haugh, 2014). It becomes a source of sustainable competitive advantage (Foster, 2016).

2.4.5 Competitiveness of Food and Beverage Manufacturing Firms

Competitiveness depends on various interconnected organizational factors, including productivity, market share, profitability, efficiency, product range, value creation, and customer satisfaction. SMEs are significantly affected by factors such as fluctuations in production costs, interest rates, lack of capital, and lack of collateral security, among others (Kamau, Kamau Muia, 2015). Innovation can influence competitiveness by enhancing the efficiency or effectiveness of internal processes (Crossan & Apaydian, 2010). It greatly impacts manufacturing firms' performance by creating an improved position that leads to competitiveness.

According to a report conducted by the European Commission (2017), manufacturing firms are facing various challenges, including economic uncertainty, shifting customer demands and expectations, increased labor costs, and heightened global competition. SMEs are responding to these challenges with several strategic initiatives, such as innovations. Competitiveness depends on how well an organization leverages its strengths to address threats and exploit opportunities (Management Training Australia, 2015). The importance of competitiveness in driving firm survival, growth, and trade makes it vital to economic development (Snyder, 2016). Organizations that can optimize their operations and create new value for their consumers often survive and grow. Therefore, it is critical that firms offer new or improved products and services, streamline processes, adopt new marketing strategies, and modify organizational structures and policies. Yildiz (2012) defines innovation as something different that has an impact and is essential if firms want to remain relevant. Innovation is a complex and multidimensional activity necessary for firms to compete successfully in the market (Rosli & Sidek, 2014). Porter (1990) defined competitiveness as a firm's ability to successfully compete in a given environment, which depends on innovation and the ability to adapt and change.

For food and beverage manufacturing firms to stay relevant, they need to implement strategies that will help them develop and maintain their competitiveness. Profits and market share have been used as proxies to measure firm competitiveness (Kesinro, 2016). Globalization and market liberalization have led to increased importation of

new and second-hand, cheaper products from industrialized countries. Manufacturing firms that fail to harness technological innovation for their advantage often suffer from low productivity, inefficient operations, and low-quality products, making it difficult for them to compete effectively in a dynamic market (Barbero, Casillas, &Feldman, 2011). Low competitiveness in SMEs has impacted their survival and growth, leading to the closure and failure of many SMEs.

2.5 Empirical Review of Existing Literature

2.5.1 Influence of Product Innovations and Competitiveness of Manufacturing Firms

A study by Mwangi and Namusonge (2014) examined the influence of innovation on growth among garment manufacturing industries in Nakuru County. The study focused on product, process, and technological innovations. 43% of the responding firms had adopted new technologies for their operations, products, and services. The study found that innovations contributed to the growth of these firms. According to Wahab and Jabar (2017), there are four types of product innovations: incremental innovation, customer-oriented innovation, company-related innovation, and radical innovation. Product innovation involves new developments in activities carried out by firms to deliver the core product while making it more attractive to consumers.

Oke, et al. (2007) conducted a study on firms in the UK and found that a new product had a positive impact on firm performance. Atlay, Anafarta, and Sarvan (2013), in their study of firms in the automotive supplier industry in Turkey, concluded that a new product had a significantly positive impact on firm performance. Belderbos, Duvivier, and Wynen (2010) conducted a study on innovation and export competitiveness in Flemish firms by examining the effect of innovation on export intensity and growth using both cross-sectional and panel data of 733 firms. They concluded that the implementation of innovations, especially new products, had a strong positive correlation with the export intensity of firms. Ar & Baki (2011) conducted a study on the "Antecedents and performance impacts of product versus process innovation in SMEs in Turkish Science and Technology Parks."

This study confirmed a positive and significant influence of new product and process on firm performance. Sidek and Rosli (2013) conducted a study on “the impact of Innovation on the performance of Small and Medium Manufacturing Enterprises in Malaysia” using a sample of 284 SMEs. Research findings indicate that new products influenced firm performance positively. Hajar (2015) surveyed the correlation between innovation and performance of SMEs in Indonesia that manufacture wooden furniture. The study revealed that innovative strategies had positive results on performance. Atalay (2013) discovered that business positioning through innovation is closely related to SMEs performance. The study established that new product and process strategies have an important and significant influence on firms' performance.

2.5.2 Process Innovation and Competitiveness of Manufacturing Firms

The new process aims to lower unit costs of production or delivery, improve quality, or create or enhance new or significantly better products (OECD, 2005). Najib (2013) argues that new processes are highly relevant for firms facing intense competition, as they boost productivity. Process innovation directly and immediately affects the productivity performance of manufacturing firms due to their organizational simplicity (Castillejo et al., 2013). Oke et al. (2013) emphasizes that process innovation should be a key focus in manufacturing enterprises as a primary source of competitive advantage. Krajewski (2010), in his study of SMEs in Finland, found that process innovation is positively linked to firm performance. Sidek and Rosli (2013) conducted a study on "the impact of innovation on the performance of small and medium manufacturing enterprises in Malaysia." Their findings suggest that process innovation positively influences firm performance. The study recommends that SMEs can adopt innovation strategies to enhance their performance. Sauli (2014), in a study conducted in Finland, discovered a slight influence of innovative skills on SME performance. Similarly, Rosli (2013) in Malaysia confirmed that being innovative in procedures positively affected SME performance. In Kenya, Ngugi and Karanja (2013) found a relationship between innovation and performance, stating those innovative activities such as product, process, and marketing innovativeness increased SME revenue.

2.5.3 Marketing Innovation and Competitiveness of Manufacturing Firms

Marketing method involves significant changes in product design or packaging, product placement, product promotion, or pricing (OECD, 2005). Marketing methods can either be developed by the innovating firm or adopted from other firms or organizations and can be implemented for both new and existing products. Market innovation includes significant changes in product design that are part of a marketing concept; changes in the packaging of products, and product placement primarily involve the introduction of new sales channels (OECD, 2005). According to Johne (1999), new markets involve the marketing mix and market offerings that are made to satisfy customers' needs. Krajewski (2010) asserts that new markets aim at fulfilling market needs while responding to market opportunities. Hence, any marketing innovation needs to focus on meeting customer needs (Sidek & Rosli, 2013). Market innovation focuses on better addressing customer needs, opening up new markets, and positioning a firm's product in the market, with the objective of increasing the firm's sales (OECD, 2005). Salim & Sulaiman (2011) conducted a study on new organization and performance among Malaysian SMEs.

The study findings revealed that market innovation is a critical factor for firm performance. Atalay, Anafarta, and Sarvan (2013) studied the relationship between innovation and firm performance using empirical evidence from the Turkish automotive supply industry. The analysis results demonstrated that technological innovation (product and process) has a significant and positive impact on firm performance, but no evidence was found for a significant and positive relationship between non-technological innovation (organizational and marketing) and firm performance. The findings in Tunisia cannot be generalized to the Kenyan setting. According to Johne & Davies (2000), marketing innovations increase sales by boosting product consumption, leading to increased profits for the firm. Otero-Neira et al. (2009), in their study on "Innovation and Performance in SME Furniture Industries," found strong evidence that market innovation positively influenced business performance. Similarly, Bryman & Bell (2012), in their study of SMEs in Finland, confirmed a robust, significant relationship between marketing innovation and firm performance. However, Sidek and Rosli (2013), in their study on "the impact of

Innovation on the performance of Small and Medium Manufacturing Enterprises in Malaysia," concluded that new markets did not have significant effects on firm performance.

2.5.4 Organization Innovation and Competitiveness of Manufacturing Firms

Organizational methods involve the firm's business practices, workplace organization, or external relations" (OECD, 2005). These include "the implementation of new methods for organizing procedures and routines for the conduct of work, the introduction of management systems, business re-engineering, lean production, and quality-management systems, as well as the implementation of new methods for assigning responsibilities and organizing relations with external firms or institutions" (OECD, 2005). Wahab and Jabar (2016) studied organizational innovation strategies towards SMEs in Malaysia. The findings of this study indicate that different types of innovation have varying impacts on organizational performance. Innovations can help SMEs in Malaysia sustain and survive in a dynamic and challenging economy. Njenga's (2015) study focused on new organizational structures and the operational performance of SMEs in Nairobi County. The study established that innovation is widely practiced. Factors such as competitive pressures and market segmentation had a significant influence on the adoption of innovation.

The study established that innovation leads to improved operational performance in practicing firms. It initially focused on new organization, but the current study examines four types of innovation. A study by Osunga and Namanda (2016) concludes that innovations in marketing have a strong positive relationship with the performance of SMEs. This is because customer needs and preferences are continually changing to adapt to the market. The study was based in Malaysia, a developed country compared to Kenya. Organizational methods aim to improve a firm's performance by reducing administrative and transaction costs, increasing workplace satisfaction, gaining access to non-tradable assets such as non-codified external knowledge, or lowering supply costs (OECD, 2005). Lin & Chen (2007) argued that organizational innovations, as opposed to technological innovations, are most crucial for total sales. In their study on innovation and performance, Lin and Chen (2007) found that organizational

innovation positively impacts firm performance. Mensah and Acquah (2015), in their study of “the effect of innovation types on the performance of SMEs in Takoradi metropolis,” discovered a significant positive relationship between organizational innovation and firm performance. Njenga (2015) studied organizational innovation and operational performance of SMEs in Nairobi County, revealing that innovation is widely practiced and that factors such as competitive pressure and market segments significantly influence the adoption of innovation. Wahab & Jabar (2016) researched organizational innovation strategies among SMEs in Malaysia, indicating that different types of innovation have varying impacts on organizational performance.

2.5.5 Competitiveness of Food and Beverage Manufacturing Firms

According to the International Trade Centre (2019), manufacturing firms' competitiveness refers to the ability to design, produce, and commercialize an offer that fully, uniquely, and continuously meets the needs of targeted market segments, while drawing resources from the business environment and achieving sustainable returns on the resources employed. Competitiveness drives a firm’s survival, growth, and trade. Furthermore, the International Trade Centre (2009) proposed a competitiveness grid that can be used to measure a firm's competitiveness, consisting of three pillars: compete, connect, and change. The capacity to change focuses on the manufacturing firm’s current operations and their efficiency regarding cost, time, quality, and quantity. The capacity to compete extends to the immediate business and national environment. Its constructs related to the capacity to compete include the use of internationally recognized quality certificates (firm capability), access to technical infrastructure (immediate business environment), and low tariffs (macro-environment).

The capacity to connect is the second pillar of competitiveness in the manufacturing sector. It focuses on a manufacturing firm's ability to gather and utilize information and knowledge. For a firm, the capacity to connect refers to efforts to collect information flowing into the company. This information includes customer profiles, preferences, and demands, as well as efforts to facilitate information flows from the firm, such as marketing and advertising. At the intermediate business environment

level, the capacity to connect encompasses links to sector associations, chambers of commerce, and other trade and investment support organizations. At the national level, the ability to connect involves the availability of information and communications technology infrastructure. International Trade Centre, (2019) notes that the capacity to connect is not strictly a time-sensitive phenomenon; however, gathering and exploiting information is crucial, not only for current but also for future competitiveness, serving as an essential link between the two pillars of static and dynamic competitiveness.

The third pillar is the ability to change, focusing on a firm's capacity to adapt to or anticipate dynamic market forces and to innovate through investment in human, intellectual, and financial capital. It includes the dynamic aspect of competitiveness. According to the International Trade Centre (2019), disruptive innovations require strategy adjustments. Therefore, the ability to change reflects how well firms access financing and invest in human capital, innovation, and intellectual property protection. At the business or macroeconomic level, the environment's capability to provide these resources to firms is measured.

2.5.6 Firm Size, Innovation, and Competitiveness

Firm size is an important internal factor influencing both innovation capacity and firm competitiveness. It has been defined differently across countries and economies. Typically, firm size refers to an organization's resources, turnover, or workforce size (Zhang et al., 2013). Several indicators such as total assets, total sales, market value of equity, and the total number of permanent employees are used to measure firm size. This study will use the total number of permanent employees to determine the firm's size. Accordingly, small enterprises have 5-49 permanent employees, while medium enterprises have 50-99 permanent employees. Large firms are generally considered more competitive due to their resource advantages and economies of scale, making them more competitive compared to smaller firms. Larger firms are also believed to engage more in internal R&D, which fosters innovation—a key factor in firm competitiveness (Selcuk, 2013). According to Lin & Chen (2007), firm size may serve as a precursor to firm performance. Schumpeter (1942) posited that larger firms tend to be more innovative due to better access to funds and their ability to spread R&D risk.

Damanpour (1996) argued that larger firms are more innovative because they have access to resources necessary for innovation and competitiveness. Large firms are believed to have a resource advantage over smaller firms, which they can leverage to enhance their competitiveness. Firm size is also thought to be positively correlated with innovation. Covin et al. (2006) also found that firm size influences a company's processes, performance, and innovation capacity. Firm resources have been linked to firm size, and sometimes, firm size is used as a proxy for resources. According to the resource-based theory, a firm's competitiveness is rooted in its core competencies, which are based on physical and human resources and networks that enable it to compete effectively in its market (Munizu, 2014). Total assets measure a firm's overall resources, including financial, human, and physical assets, which are key to enhancing enterprise competitiveness. Among the critical processes affecting competitiveness is innovation, which depends on the availability of key firm resources. However, empirical evidence is mixed: some scholars observe that SMEs are more innovative than larger firms due to their flexibility and faster response times. Others argue that firm size is just one factor influencing innovation, and its significance depends on other factors such as resources, industry life cycle, and market competition. Secluk (2016), in his study on "factors affecting firm competitiveness: evidence from an emerging market," found a significant positive effect of firm size on competitiveness, as indicated by profitability and return on assets.

Griffith, Goundry, and Kickul (2010) in their study on factors affecting firm competitiveness investigated both financial and non-financial determinants of firm competitiveness. Research findings showed that leverage, firm size, export activity, and management competence had a significant effect on firm competitiveness, as indicated by return on sales and return on assets. Dogan (2013), in their study of the impact of firm size on profitability using a data set of 200 listed companies from 2008 to 2011, found a significant positive relationship between firm size and profitability. Janet & Ngugi (2014), in their study on the determinants of profitability, found that firm size has positive effects on profitability only up to a certain point, after which the relationship turns negative.

2.6 Critique of Existing Literature

Studies reviewed acknowledged the important role played by manufacturing firms, and reviewed literature suggests that innovation is a strategic solution for firms that can be employed to enhance their competitiveness, survival, and growth in a dynamic competitive environment. The reviewed studies demonstrate that a firm's performance potential relates to innovation, which provides a competitive edge. However, studies on SME innovation are still limited compared to those conducted on large firms regarding the same aspect (Zhang & Merchant, 2020). Innovation is highlighted as a core competence for SMEs to achieve sustainable competitiveness (Gray, 2006; Dibrell et al., 2008; Kiraka, Kobia & Katwalo, 2013; Lin & Chen, 2007; Aikeli, 2007). It is also recognized that SMEs are generally in a better position to innovate because of their structure and flexibility but have not fully realized this potential due to several factors.

Past research has identified various taxonomies of different types of innovations. However, it is somewhat difficult to clearly distinguish one type of innovation from another. For example, product innovation often includes aspects of process or position innovation. To put it simply, if a firm aims to introduce a new product to the market, it also tends to introduce a new manufacturing process. This indicates that process innovation is related to product innovation. Clearly, such ambiguity, among other issues in the innovation literature, leads to overlaps between different innovation types and ultimately to a strong interdependence among them. From the reviewed literature, there is general agreement on an effective taxonomy of innovation types. Some researchers, such as (Damanpour and Gopalak, 2001), have explored the existing dependencies between various types of innovations and the extent to which adopting one type of innovation encourages the adoption of another, such as process and product innovation.

However, previous studies do not address dependencies involving position and paradigm innovation, as well as related concepts such as marketing, business model, or disruptive innovation. For example, organizational factors and internal processes that influence marketing orientation are documented, and market orientation has been

linked to product innovation performance (Zhang &Duan, 2010). Haufler et al. (2017) noted that not all innovative activities were successful; some faced rejection from markets where consumers preferred the status quo and were hesitant to try new products. As a result, convincing them to purchase the improved product or service remains a major challenge.

2.7 Research Gaps

A review of past empirical literature provides evidence of research in the area of innovation but not with a comprehensive approach to Kenya. Some studies have focused on the same theme of innovation but in different contexts, such as developed or developing economies, so their findings cannot be generalized to Kenya, as the environment in which SMEs operate differs. For example, Salim and Suleiman (2011) conducted a study on organizational innovation and performance in Malaysia. Ataya, Anafarta, and Sarvan (2013) examined the relationship between innovation and firm performance in Turkey. Ngugi and Chepkulei (2013) focused on the type of innovation that affects the growth of SMEs in the rural setting of Kericho, Kenya. The findings from this study cannot be applied to an urban setting such as Nairobi, where operating environments differ. Njenga (2015) studied organizational innovation and operational performance in SMEs but narrowed the focus to organizational innovation alone, without addressing other types of innovation. Mwangi and Namsonge (2014) explored the influence of innovation on SME growth, specifically within the garment manufacturing industry in Nakuru County, but did not examine competitiveness. Much research on the performance relationship, such as Phua et al. (2014) and Miles et al. (2017), has been conducted in developed countries, which face different business environments from those in developing nations. Additionally, their objectives differ from those of this study. Therefore, there is a noticeable lack of local research focused on how innovation influences the competitiveness of SMEs. This study aims to fill these gaps by analyzing various types of innovations and their impact on SMEs' competitiveness. It will contribute to existing literature by providing empirical evidence on the role of innovation in enhancing the competitiveness of SMEs in Kenya, addressing both contextual and theoretical gaps.

A study by Clausen (2013) found that about 43% of SMEs pursue product innovation and 27% pursue process innovation, with approximately 21% engaging in both. However, this was not consistent with the findings of Chodokufa (2009). This creates a research gap that this study aims to address in order to either validate or challenge the existing literature. Moreover, many studies on innovations in SMEs focus on either radical or incremental innovations, assuming a wider variety of innovation types that this research intends to narrow down. A study by Robson (2009) on the effect of innovation activities in SMEs in Croatia found that innovation leads to increased market share. A study by Lin & Chen (2007) on whether innovation influences performance found that innovation impacts sales. A study by Otero-Neira et al. (2009) on innovation and performance in SMEs within the furniture industry, from an international perspective, established that market innovation positively affects firm performance. It focused on SMEs in the furniture sector, a subset of the manufacturing industry. A study by Belderbos, Duvivier, and Wyen (2020) on innovation and export competitiveness in Flemish firms found that implementing innovations, especially product innovations, is strongly and positively correlated with export intensity.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a detailed description of the research methods used to achieve the study's objectives. It covers the following sections: Research Philosophy and Research Design, Study Population, Sampling Procedure, Data Collection Instruments, Data Collection Methods, and Data Analysis and Presentation.

3.2 Research Philosophy and Design

Research philosophy refers to the approach taken for the research proposal. It examines the reality measure used, as well as validity, reliability, and generalizability.

3.2.1 Research Philosophy

This study adopts a positivist philosophy because its goal is to test theory-driven hypotheses about measurable relationships among variables using standardized, observable indicators. Positivism highlights objective measurement, reproducible procedures, and statistical analysis, which match our design: constructs (e.g., types of innovation and firm competitiveness) are operationalized through structured items, data are gathered from a sufficiently large sample to enable generalization, and relationships are estimated and tested (e.g., coefficients, effect sizes, significance tests) to confirm or challenge prior theoretical expectations (Wood & Ross-Kerr, 2016; Leedy & Ormrod, 2016; Salmons, 2016). Methodologically, a positivist approach supports the study's focus on deduction (forming hypotheses from established theory), instrument standardization (to minimize researcher influence), and validity and reliability criteria (pilot testing, content/construct validity checks, internal consistency like Cronbach's alpha, and, when suitable, confirmatory factor analysis).

These procedures are essential to ensure that the indicators accurately measure the intended constructs and that findings are reliable, comparable, and reproducible across contexts (Mohaj, 2018). Epistemologically, positivism is appropriate because the

research aims to explain and predict, determining whether and how specific innovation dimensions (product, process, marketing, organizational) affect competitiveness and measuring the strength and direction of these effects. These goals require quantitative modeling (e.g., regression, ANOVA, SEM, and moderation tests where theorized), classic positivist tools for assessing causal relationships under explicit assumptions. Practically, a positivist approach enhances the decision-making value of results for managers and policymakers: effect estimates with confidence intervals and significance levels provide evidence-based guidance for resource allocation. Although deeper interpretive insights into lived experience are beyond this study's scope, the chosen philosophy best suits the study's purpose (hypothesis testing), design (structured survey), and outputs (generalizable, policy-relevant estimates)—adhering to positivist standards of objectivity, validity, reliability, and transparency.

3.2.2 Research Design

This study employs a mixed-methods research design because its objectives require both generalizable estimates of relationships and contextual explanations of mechanisms. On the quantitative side, a structured questionnaire distributed to a probability sample from a well-defined population offers the breadth needed to describe firm characteristics and to test hypothesized links between business innovation (product, process, marketing, organizational) and competitiveness, with sufficient statistical power and control (Andres, 2012; Kothari, 2008). On the qualitative side, interviews and focus groups gather managers' and practitioners' perspectives on how specific innovations are conceptualized, adopted, and turned into competitive outcomes, providing interpretive depth that a survey alone cannot achieve (Creswell, 2013).

Methodologically, mixed methods are justified because the research questions are both confirmatory and explanatory. Quantitative analyses measure the direction, magnitude, and significance of effects across firms, while qualitative inquiry explains why effects occur (or don't occur) under specific conditions (e.g., firm size, market position, regulatory or infrastructural constraints). Combining the two approaches allows for triangulation—validating findings across separate methods—and

complementarity, in which qualitative insights deepen understanding of statistical patterns (Creswell, 2013; Bryman & Bell, 2015).

This design also enhances validity and reliability. Survey standardization and sampling improve measurement reliability and external validity, while qualitative checks (e.g., probing ambiguous survey constructs, exploring outliers, and surprising coefficients) boost construct validity and interpretive credibility. Using multiple methods decreases single-source and common-method bias, thereby reducing systematic error and strengthening the robustness of inferences (Bryman & Bell, 2015; Kothari, 2008).

Substantively, the innovation–competitiveness relationship is complex. Product, process, marketing, and organizational innovations follow different paths and timeframes, often interacting with firm capabilities and market trends. A mixed approach captures both the observable relations (e.g., regression coefficients from survey data) and the process narratives (e.g., adoption sequences, implementation bottlenecks, changes in customer perception) needed to create practical guidance for managers and policymakers in Kenya's food and beverage manufacturing sector (Creswell, 2013).

Practically, a Quantitative-to-Qualitative explanatory-sequential approach aligns with the study's goals: quantitative data first identify the patterns and strengths of relationships; targeted qualitative follow-ups then clarify unusual or borderline results, highlight boundary conditions, and suggest improvements to theory and measurement in future research. This order produces conclusions that are both statistically sound and useful for strategy and policy decisions.

In summary, mixed methods support the study's two main goals of measurement and understanding. It offers (i) extensive coverage to describe the population and test hypotheses thoroughly, and (ii) detailed insight into mechanisms and context. This approach achieves a balance of breadth and depth and ensures corroboration, aligning with best practices in management and social science research (Andres, 2012; Creswell, 2013; Bryman & Bell, 2015; Kothari, 2008)

3.3 Target Population

The target population is a collection of research components that refers to all members of an actual or imaginary group of people, events, or objects to whom the findings should be applied (Prabhat & Meenu, 2015). It can also be described as the set of sampling units or cases of interest to the researcher. The target population, according to Kothari (2019), is the physical representation of all units that could be members of the sample. A population can alternatively be thought of as the entire collection of elements from which the study aims to draw conclusions. Mugenda and Mugenda (2018) define a population as a group of people, objects, persons, or items from which a sample is drawn for analysis and to which generalizations can be made about the entire population. In this case, the population includes 1061 distribution firms. According to KAM (2022), there are 403 food and beverage manufacturing firms, numbered and structured as shown in Table 3.1.

Table 3.1: Target Population

Category	Target population
Alcoholic Beverages & Spirits	116
Bakers & Millers	55
Cocoa, Chocolate, and Sugar Confectionery	24
Dairy Products	21
Juices / Waters / Carbonated Soft Drinks	83
Slaughtering, Preparation, and Preservation of Meat	22
Tobacco	4
Vegetable Oils	78
Total	**403**

Source: KAM (2022)

3.4 Sample and Sampling Technique

A sample is a subset of the population selected for a study (Gronhaug, 2005). Sampling involves selecting a representative subset of the population so that each selected individual reflects the larger group from which they are drawn (Scheaffer, Mendenhall & Ott, 2006). The study used a stratified random sampling procedure to select respondents. Stratified random sampling is a probability sampling method in which

the target population is divided into mutually exclusive, homogeneous segments (strata) (Levy & Lemeshow, 2008). Stratified sampling provides greater precision than simple random sampling because the variability within subgroups is lower than the variability across the entire population (Levy & Lemeshow, 2008).

3.4.1 Sample Size

The study's sample size was determined using the Krejcie and Morgan formula (Russell, 2013). Using this formula, a representative sample was obtained. The total population of the study is 217. Simple random sampling was employed to select 139 respondents from the total population.

$$n = \frac{N}{1 + N(e)^2}$$

The formula used for arriving at the sample size is;

Where n is the sample size

N is the population size,

e is the level of precision.

When this formula is applied, the study sample comprises 201 food and beverage manufacturing firms.

Table 3.2: Sample Size

Category	Target population	Sample Size
Alcoholic Beverages & Spirits	116	23
Bakers & Millers	55	22
Cocoa, Chocolate, and Sugar Confectionery	24	15
Dairy Products	21	13
Juices / Waters / Carbonated Soft Drinks	83	29
Slaughtering, Preparation, and Preservation of Meat	22	14
Tobacco	4	3
Vegetable Oils	78	19
Total	403	201

3.4.2 Sampling Technique

Sampling techniques are the methods used to determine sample size. They are definite plans established before any data collection to obtain a sample from a given population (Serekan & Bougie, 2010). It is the process of collecting information about an entire population by examining only a part of it (Kothari, 2018). The study employed a multistage sampling design that combined cluster and stratified random sampling. Multi-stage sampling is a technique conducted in phases and typically involves more than one sampling method (Kothari, 2018). Stratified random sampling was used to divide the population into subgroups (strata) by sector. Each element in the population had an equal chance of being selected. This method was chosen because the target population is assumed to have different characteristics depending on their locations and business sectors. According to Gray (2013), stratification provides a more effective way of collecting data from various segments than simple random sampling. It was further applied within the clusters to reduce bias in the sample collection. Food and beverage manufacturing firms were randomly selected from the strata to eliminate bias.

3.5 Data Collection Instruments

Data collection involves systematically gathering information on targeted variables, enabling the researcher to answer relevant questions. Data collection instruments are tools used for gathering data. In this study, primary data were collected through questionnaires. Data from manufacturing firm owners was gathered using structured questionnaires. A questionnaire is a data-collection instrument that presents questions to obtain specific information (Kothari & Gaurav, 2014). The questionnaires were suitable because they are convenient to administer, relatively inexpensive, and require minimal prior preparation. They were structured to align with the study objectives, with each variable forming its own subsection in the questionnaires. They include both open-ended and closed-ended questions, with the quantitative section using an ordinal scale format. The questionnaire consists of a list of questions and Likert-scale items related to the inquiry.

The study used primary data collected through structured questionnaires, including both open-ended and closed-ended questions designed to align with the research objectives and encourage higher response rates. These questionnaires are considered suitable because they are cost-effective, flexible, easy to administer, unbiased, and capable of efficiently gathering diverse information from a relatively large sample. Questionnaires are also appropriate for descriptive studies since they collect information that cannot be observed directly (Cooper & Schindler, 2012). The data collected for the study were both quantitative and qualitative. Primary data were used to meet the study objectives; therefore, data were gathered from manufacturing firms. The research instrument was administered by the researcher to the enterprise's manager or owner, with assistance from well-trained research assistants. Using the researcher to administer questionnaires helps reduce nonresponse, ensures quick completion and return, and increases data accuracy.

3.6 Data Collection Procedure

Data collection procedures describe how the data were actually gathered from respondents. These procedures are very important because they improve the validity of the research process (Maxwell, 2013). To ensure that completed questionnaires are returned as quickly as possible, this study adopted a hand-delivery and collection method. Aliyu (2014) states that the hand-delivery and collection method saves time, clarifies doubts and misunderstandings, and results in a higher response rate. Additionally, it is favored because of its key benefits: (a) all completed questionnaires can be collected in a short period, (b) it allows immediate clarification or explanation of items that respondents may find confusing, and (c) it creates opportunities to encourage respondents to participate and provide sincere opinions, especially when resistance may be observed, as outlined by Sekara and Bougie (2010).

3.7 Pilot Test

To ensure the reliability and validity of the collected data, a pilot study was conducted to verify the instruments' accuracy. Creswell (2017) indicates that before the main study, a pilot study needs to be conducted to establish the reliability and validity of the instruments. Pilot testing was performed to identify and eliminate errors and

ambiguities in the questionnaires (Ahmed, 2016). An initial pilot investigation was carried out to assess the adequacy of the research design and the questionnaires to be used, ensuring that the intended respondents understood the questions. The researcher conducted a pilot test to pre-test and validate the questionnaires. This involved a small-scale trial to evaluate the reliability and validity of the research tools. It allowed for modifications to questions to replace, clarify, refine, or eliminate ambiguities. The proposed pilot test adheres to the rule of thumb suggested by Mugenda and Mugenda (2003), which states that 10% of the sample should be used for pilot testing. The study applied this guideline, using 10% of the sample size as recommended by Leedy and Ormrod (2016). For this purpose, the researcher used 40 respondents, representing 10% of the study sample. Questionnaires were distributed to 40 firm managers to assess their understandability and effectiveness in gathering the information needed for the study's conclusions. The quality and accuracy of the data collected were then evaluated, and any ambiguous questions were revised before fieldwork and data entry.

3.7.1 Reliability Test

Reliability refers to the extent to which results are consistent over time and accurately represent the population being studied. According to Bryman (2012), reliability is the consistency or stability of measurement across different conditions, such that the same results are obtained. This means that the study's results can be replicated using the same methodology and instruments (Saunders et al., 2012; Kothari, 2009). Threats to reliability can arise from instrument, observer, or respondent error (Robson, 2002). To enhance the instrument's reliability, the researcher standardized data collection conditions and employed well-trained research assistants to reduce external sources of variation (Lumpkin & Dess, 1996). The reliability of the questionnaire was assessed using Cronbach's alpha coefficient (Cronbach, 1951), which measures the internal consistency among a set of items; specifically, the degree to which respondents answer similar questions in a consistent manner. This assessment was based on data collected during the pilot study.

Cronbach's alpha for internal consistency was calculated in SPSS version 24 to assess the reliability of the survey instrument. Salmon (2016) states that a Cronbach's alpha

value of 0.70 indicates a reliable research instrument. The closer the Cronbach's alpha coefficient is to 1, the higher the internal consistency reliability (Sileyew, 2019). The instrument should not be influenced by chance factors or environmental conditions, but should produce consistent results when repeated over time with the same respondent or when used by two or more investigators.

3.7.2 Validity

According to Saunders et al. (2012), validity is the extent to which a data collection method or methods accurately measure what they are supposed to measure, and the degree to which research findings truly reflect what they claim to represent. Validity concerns the integrity of the conclusions derived from a piece of research. According to Taherdoost (2016), validity refers to the extent to which results from data analysis accurately represent the phenomenon under study. The validity of a research instrument indicates how well the tool measures what it is intended to measure. An instrument has content validity if it contains a representative sample of the entire subject matter of interest (Kothari, 2009). During questionnaire development, various validity checks were conducted to ensure the instrument measured what it was intended to. The validity tests conducted included content validity and construct validity.

The questionnaires were designed and implemented based on the study variables to ensure that the items for each variable were appropriate and representative of the study's purpose and objectives. Content validity was verified through feedback from supervisors. Construct validity was established by focusing questions on the variables and ensuring that the indicators for each variable belonged to the same construct. According to Kassu (2019), the quality of a research study largely depends on the accuracy of the data collection process. The instrument used for data collection provided the data necessary for the researcher to accurately address the research questions.

3.8 Data Analysis and Presentation

In data processing, the data collected from the questionnaires were edited for completeness and coded in the Statistical Package for the Social Sciences (SPSS) version 24 for analysis. The coded data facilitated data entry and subsequent processing with SPSS. Data analysis was carried out using both descriptive and inferential statistics techniques. Quantitative data analysis involved generating descriptive statistics, including frequencies, percentages, means, and standard deviations. The data were presented using tables and charts. The use of frequencies and percentages was important because it simplified the data by reducing the numbers and translating them into a standard form (Wood & Ross-Kerr, 2016).

Qualitative data analysis was conducted on data collected using the interview guide, categorized according to the study's themes, and presented in narrative form. Descriptive statistics, including mean, standard deviation, and Z-scores, were used to determine the influence of business innovation on the competitiveness of food and beverage manufacturing firms. The study also employed inferential statistical techniques, such as regression and correlation analyses, to assess the influence of business innovation on the competitiveness of food and beverage manufacturing firms.

Correlation analysis was conducted to assess the strength of association between variables. T-statistics (t) were used to test the hypothesis on the significance of the relationship between variables. The t-test was used to assess the significance of an independent variable (Creswell, 2016). The study employed t-tests to assess whether the hypothesized model was significant at the 95% level. Analysis of Variance (ANOVA), or the F-test, was used to assess the model's goodness of fit, i.e., the overall significance of its parameters. The research hypothesis was tested at a 95% confidence level to enable the formulation of conclusions.

For qualitative data collected via questionnaires, analysis was conducted using a checklist and content analysis based on the study variables. The checklist was organized around the main themes of the research to facilitate collaboration, information consolidation, interpretation, and analysis. Content analysis, the systematic process of analyzing verbal or written communications to measure

variables qualitatively, was applied. Based on this background, a linear regression model was used to test the linear relationship between innovation and SMEs' competitiveness.

Linear regression analysis to test H1

$Y=\beta 0+\beta 1XI+\varepsilon$……. (I)
$Y=\beta 0+\beta 2X2+\varepsilon$……. (II)
$Y=\beta 0+\beta 3X3+\varepsilon$……. (III)
$Y=\beta 0+\beta 4X4+\varepsilon$……. (IV)

The study also used a multiple linear regression model to assess the significance of the independent variables' combined effect on the dependent variable. The multiple linear regression model employed in this study is shown below.

$Y=\beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\beta 4X4+E$……. (V)

Where;

Y=Competitiveness of SMEs
X1=Product Innovation
X2=Process Innovation
X3=Market Innovation
X4=Organization Innovation
β0=Constant
β1, β2, β3 and β4=Beta coefficients and
ε=Error term
The two multiple regression equations are;

Inferential analysis examined the influence of innovation on SME competitiveness.

The moderating effect of Firm Size was tested using three regression models as follows;

$Y=\beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\beta 4\beta 4+\beta 5M5+\varepsilon$……. (VI)

$Y=\beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\beta 4\beta 4++\varepsilon$…….……(VII)

$Y=\beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\beta 4\beta 4++\beta 5M+\varepsilon$……(VIII)

Where;

M5=Firm Size
β0=Constant
β1, β2, β3, β4 and β5=Beta coefficients and
ε=Error term

3.9 Diagnostic Tests

The study performed a series of diagnostic tests prior to interpreting the model. The tests included: -

3.9.1 Normality Test

A normal distribution was assumed for parametric statistical procedures, which were used to determine whether the sample data were drawn from a normally distributed population. For this study, the quantile-quantile (Q-Q) plot was used to assess normality. This plot compared the ordered values of a variable with the quantiles of a specific theoretical normal distribution. If the two distributions matched, the points on the plot formed a linear pattern passing through the origin with a slope of one.

Statistical procedures required testing the assumption of normality. This involved performing graphical tests to assess the data's normality and checking for skewness and kurtosis. It verified whether the data followed a normal or an asymmetric distribution. If the assumption of normality was not met, the results might not accurately reflect the true relationships among the variables. This study used the Shapiro-Wilk Test to assess normality, as it is reliable for testing skewness and Kurtosis values. The normality test helped address discrepancies when the theoretical

expectations—based on the assumption that the population from which the sample was drawn was normally distributed—were contradicted.

3.9.2 Linearity Test

Linearity is the property of a mathematical relationship or function that can be graphically represented as a straight line, also called the goodness-of-fit line (Gujarati & Porter, 2010). In research, it describes the extent to which a dependent variable has a linear relationship with one or more independent variables. This means the expected value of the dependent variable is a straight-line function of each independent variable, while holding the others constant. To test linearity, an ANOVA table for the linear and nonlinear components of each variable pair was generated in SPSS version 24.0. If the deviation from linearity exceeds 0.05, then the relationship between the independent variables is considered linear. Otherwise, the relationship between the independent variables and the dependent variable is considered non-linear.

3.9.3 Testing of Assumption

Data purification was performed using exploratory factor analysis (EFA) after conducting descriptive analysis. The research employed EFA and reliability analysis with SPSS version 24 to refine the data. Through EFA, the study identified the optimal number of factors by selecting variables that were highly correlated among themselves but had low correlations with other variables. When performing a Confirmatory Factor Analysis (CFA), the study considered more than just the model's fit indices (Creswell & Creswell, 2017). The CFA was used to evaluate the convergent validity of the constructs. ANOVA was used to assess the model's goodness of fit at the 95% confidence level.

3.9.4 Homoscedasticity and Heteroscedasticity Tests

Homoscedasticity assumes a constant variance of the regression error term. This means that the relationship being studied remains consistent across the entire range of the dependent variable (Gujarati & Porter, 2010). Violations of homoscedasticity make it difficult to accurately estimate the true standard deviation of the forecast errors, often

leading to confidence intervals that are too wide or too narrow. If the error variance increases over time, confidence intervals for out-of-sample predictions tend to be unrealistically narrow (Creswell, 2016).

The homoscedasticity test was performed by visually inspecting the squared residuals. When the homoscedasticity assumption held, residuals appeared as a random scatter of points. The lack of homoscedasticity was most clearly evident in a standardized scatter plot. When the regression error was homoscedastic, the regression model was equally accurate across the entire range of the dependent variable (Field, 2013).

Testing for heteroscedasticity was also important because it helped ensure that the significance of statistical tests (t-test, F-test) remained valid, which was essential for drawing conclusions (Leedy & Ormrod, 2016). Heteroscedasticity was assessed to ensure homoscedasticity during the analysis, and evaluated using the Glejser test in stochastic terms. Heteroscedasticity occurs when the variance of the error term varies across observations. Salmons (2016) emphasized that heteroscedasticity testing is useful for assessing whether residual variance differs across observation periods.

3.9.5 Auto Correlation

The use of regression analysis assumes that the data are normally distributed and that errors are independent. Therefore, it is necessary to control for autocorrelation. Autocorrelation is the correlation between observations ordered in time or space (e.g., in cross-sectional data). The Durbin-Watson statistic test (D) is used to measure the correlation between each residual and the residual from the previous time period. When the successive residuals are positively autocorrelated, the value of D approaches 0. If the residuals are not correlated, the value of D is close to 2. If there is negative autocorrelation, D is greater than 2 and can approach its maximum value of 4 (Gujarati & Porter, 2010).

3.9.6 Multicollinearity

Multicollinearity is a phenomenon that occurs when two or more independent variables in a regression model have a strong linear relationship. It occurs when

predictors in the model are highly correlated, leading to unreliable, unstable estimates of regression coefficients and producing strange results when trying to understand how each independent variable contributes to the dependent variable. The effects of multicollinearity include inflated standard errors of the Beta estimates, which reduce reliability and can lead to confusing and misleading results.

The test for multicollinearity was conducted using the Variance Inflation Factor (VIF), which assessed correlations among variables and estimated how much the variance of a coefficient was inflated due to linear dependence with other predictors (Glesne, 2016). If VIF exceeded 10, it indicated potential multicollinearity, and the coefficients were likely poorly estimated (Creswell, 2016). Multicollinearity was addressed through data transformation.

VIF analysis was performed to assess the potential multicollinearity among the independent variables in the regression model. Multicollinearity occurs when there is a perfect linear relationship between the explanatory variables X1, X2, X3, and X4. The VIF and tolerance statistics revealed whether a predictor was strongly linearly related to other predictors (Field, 2013). A VIF value between 1 and 10 suggests no multicollinearity. If the VIF was less than 1 or greater than 10, multicollinearity could have biased the regression results. Tolerance was calculated as the reciprocal of the VIF. Tolerance values below 0.1 indicated a serious problem, while those below 0.2 signaled a potential issue (Gujarati & Porter, 2010).

3.10 Hypotheses Testing

Multiple regression analysis of the form: $Y=a+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5M_5+\varepsilon$

It was used to test the null and alternative hypotheses. Cooper and Schindler (2011) observe that multiple regression analysis is used to determine whether an individual hypothesis is statistically supported. A t-test will also be used to assess the significance of Y in relation to the independent variables X1, X2, X3, and X4 at the 5% significance level. The F-test (ANOVA) was also conducted to determine the differences between groups on the study variables. The study will focus on testing the following hypotheses.

The following hypothesis guided the study:

H_{01}: There is no significant influence of product development innovation on the competitiveness of food and beverage Manufacturing Firms in Nairobi City County in Kenya.

H_{02}: There is no significant influence of process innovation on the competitiveness of food and beverage Manufacturing Firms in Nairobi City County in Kenya.

H_{03}: There is no significant influence of marketing innovation on the competitiveness of food and beverage Manufacturing Firms in Nairobi City County, Kenya.

H_{04}: There is no significant influence of organization on the competitiveness of food and beverage manufacturing firms in Nairobi City County in Kenya.

H_{05}: There is no significant moderating effect of firm size on the influence of entrepreneurial innovations and competitiveness in food and beverages manufacturing firms in Nairobi City County, Kenya.

The study used two tests derived from the regression model: the F-test and the T-test. The F-test assessed the overall goodness of fit of the regression model. The T-test determined whether each of the study's independent variables had a statistically significant relationship with the dependent variable. The significance level was set at 0.05, corresponding to a 95% confidence level. This was indicated by the P-values, where values greater than 0.05 for the independent variables led the study to reject all null hypotheses and accept the alternative.

CHAPTER FOUR

DATA FINDINGS, ANALYSIS, AND DISCUSSION

4.1 Introduction

This chapter presents the results and discussions of the study findings. These include an analysis and summary of the study as outlined in the research methodology. The chapter covers the response rate, respondents' background characteristics and demographics, the results of the pilot study, and a descriptive analysis of the study variables.

4.2 Response Rate

The target sample population consisted of 201 respondents, including finance officers, production managers, or general managers. Out of this group, 192 respondents fully participated and shared their views. The overall response rate was therefore 96%. This rate was considered satisfactory, as suggested by Sekaram and Bougie (2018), who recommend a minimum response rate of 75%. The response rate is shown in Table 4.1 below.

Table 4.1: Response Rate

	Sample Size	Returned	Response Rate
Frequency	201	192	9
Percent	100	96.0	4.0

Table 4.1 shows that of the 201 questionnaires distributed to respondents, all were completed and returned. After thorough review and screening, 192 questionnaires were completed and suitable for analysis. This meant that 192 questionnaires, or 96.0% of the study population, were included in the data analysis. As a result, this was deemed sufficient for analysis and inference.

In social science research, a response rate exceeding 70% is considered adequate for analysis. Furthermore, it is suggested that a response rate of more than 60% is

sufficient to effectively represent the sample and the population; therefore, such data can be used to draw conclusions and make recommendations.

4.3 Background Characteristics of Respondents

Respondents' background characteristics were assessed based on the number of years they have worked in manufacturing firms, the duration the organization has been in business, and the type of business ownership. The rationale for examining these characteristics among the respondents was informed by previous studies.

Table 4.2: Employees in the Food and Beverage Manufacturing Firms

Number of Employees	Frequency	Percent
1-25	46	24.0
26-50	65	33.9
51-75	52	27.1
76-100	29	15.1
Total	**192**	**100.0**

The study sought to determine the number of employees in Food and Beverage Manufacturing Firms. The results showed that 65 firms (33.9%) had 26-50 employees, 52 firms (27.1%) had 51-75 employees, 46 firms (24%) had 1-25 employees, and 29 firms (15.1%) had 76-100 employees. This indicates that the study collected data from Food and Beverage Manufacturing Firms, categorized by employee count.

Table 4.3: Number of Years the Organization Has Engaged in the Food and Beverage Business

Period in Years	Frequency	Percent
1-5 years	**16**	**8.3**
6-10	**62**	**32.3**
11-15	**85**	**44.3**
16-20	**29**	**15.1**
Total	**192**	**100.0**

From the findings in Table 4.3, 85 (44.3%) of the Food and Beverage Manufacturing Firms had been in operation for 11-15 years, 62 (32.3%) had been in business for 6-10 years, 29 (15.1%) had been operating for 16-20 years, and 16 (8.3%) for 1-5 years. This indicates that most of the Food and Beverage Manufacturing Firms have been in

operation for more than 10 years and are therefore well positioned to provide information on entrepreneurial innovation and competitiveness. This is important because, as observed by Angrave et al. (2018), a firm's age can influence its experience with innovation adoption and the extent to which this affects its competitiveness.

Table 4.4: The Type of Business Ownership for the Food and Beverage SMEs

Period in Years	Frequency	Percent
Sole proprietorship	**26**	**13.5**
Partnership	**42**	**21.9**
Limited Company	**124**	**64.6**
Other	**5**	**2.6**
Total	**192**	**100.0**

The study examined the ownership of Food and Beverage Manufacturing firms. From the results in Table 4.4, the majority, 124 (64.6%), of these firms were limited companies; 42 (21.9%) were owned by partners, while 26 (13.5%) were sole proprietorship businesses. The findings indicated that data were collected from Food and Beverage Manufacturing firms with different ownership structures, which influence innovation decisions in the industry.

4.4 Pilot Study Results

A pilot study was conducted to determine the validity and reliability of the research instrument. Conducting the pilot study was beneficial because it helped test the feasibility of the study, assess the appropriateness of the research design and techniques. The pilot study also helped verify whether the study's concept was accurately captured, evaluate if the questionnaire items measured what they were intended to measure, and eliminate ambiguity in the instrument. Additionally, the pilot results helped the researcher identify sensitive and biased questions. The researcher also used the pilot study outcomes to monitor the context in which data would be collected and to discuss the study area.

The researcher conducted a pilot study to pretest and validate the questionnaire. The pilot study was conducted with a selected target population. For this study, the researcher used 40 subjects, which is 20% of the target population, greater than the

10% recommended. Creswell and Creswell (2017) indicate that before the main study, a pilot study involving 10% of the target population should be conducted to verify the validity and reliability of the instruments. Pilot testing was conducted to assess the instrument's validity and reliability. The study used 20% of the sample, as suggested by Leedy and Ormrod (2016).

4.4.1 Validity Test Results

Validity of a research tool refers to how well it measures what it is intended to quantify. In other words, validity refers to the extent to which the results of data analysis accurately represent the phenomenon under study (Kothari, 2018). The main approaches to assessing the validity of tests and measures include content validity, face validity, and construct validity (Bryman & Cramer, 2016). Content validity assesses how effectively the items designed to operationalize a construct represent an adequate sample of all potential items that could measure the construct of interest. In this study, content validity was established through expert judgments by the research supervisors. These supervisors evaluated whether the items were relevant. Their responses were analyzed to determine the percentage representation using the content validity index. The formula used for content validity was that of Amin (2005): Content Validity Index = (Number of judges declaring the item valid) / (Total number of items).

This study involved experts in the field, including lecturers and project supervisors, to assess the study's face validity. Additionally, construct validity was ensured by operationalizing terms to confirm that the study variables reflect the theoretical assumptions underlying the conceptual framework.

To assess content validity, the study conducted factor analysis to identify items with eigenvalues greater than 1. Items with eigenvalues less than 1 were excluded. The study first evaluated sampling adequacy using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. This test indicates the proportion of variance in the variables attributable to underlying factors. KMO values range from 0 to 1, with values closer to 1 being better; a threshold of 0.5 is commonly used. Bartlett's test of sphericity assesses whether the correlation matrix is an identity matrix, which would suggest insufficient relationships among variables (Wilson, 2017).

Table 4.5: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.806
Bartlett's Test of Sphericity	Approx. Chi-Square	2158.087
	Df	11
	Sig.	.000

These results are shown in Table 4.5. Since Bartlett's test was significant ($p < 0.05$), this indicates adequate sampling adequacy (the sample is factorable). Additionally, the KMO statistic for all variables was greater than 0.5 (0.806). This suggests that the data is suitable for regression analysis.

4.4.2 Reliability Test Results

Cronbach's alpha reliability coefficient typically ranges between 0 and 1. George and Mallery (2003) reliability criterion provides the following rules of thumb: "_ >.9 – Excellent, _ >.8 – Good, _ >.7 – Acceptable, _ >.6 – Questionable, _ >.5 – Poor, and _ <.5 – Unacceptable."

Table 4.6: Internal Consistency- Cronbach's Alpha

Cronbach's alpha	**Internal consistency**
α≥.9	Excellent (high-stakes testing)
.7≤ α <.9	Good (low stake testing)
.6≤ α<.7	Acceptable
.5≤ α<.6	Poor
α< .5	Unacceptable

4.4.2.1 Reliability Results for Product Innovations

Table 4.7: Reliability Results for Product Innovations

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
There are new products being processed due to the use of technology	47.7436	47.414	.701	.883
There is an increase in the number of value-added products	47.5128	46.325	.690	.709
There is increase number of newly designed products	47.8718	45.868	.869	.783
There is an increase in ingredients used in producing new products	47.6410	45.333	.540	.764
There is an increase in new product lines in our company	48.3333	46.892	.683	.873
The new products have new technical features	47.9487	47.200	.785	.809
The new product is designed with the expectation of customers	48.1026	45.046	.643	.783
New products are differentiated by price	48.1795	47.502	.713	.733
There is an improved quality of existing products	48.1538	47.143	.616	.837
Reliability Coefficients for 9 Items	0.794 for 9 items after an item was deleted			

The Scale Mean if Item Deleted indicates that, when a specific item is excluded, all other scale items are summed for all individuals, and the mean of these summed items is provided. Item 9 was removed to achieve an overall reliability of .794 for the 9 items. In Table 4.7, the reliability test results show that the overall reliability of new product development innovation is 0.794 across these 9 items. This exceeds the threshold of .7, which is the minimum for considering a research instrument adequate

and reliable for actual data collection. Therefore, the items related to product innovation are considered adequate and consistent.

4.4.2.2 Reliability Results for Process Innovation

Table 4.8: Reliability Results for Process Innovation

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Determining non-value adding activities to improve efficiency in production processes	64.5500	22.818	.441	.706
Reduction of variable cost components in production and processes, techniques, machinery, and software	64.8500	19.721	.703	.668
Increasing output quality in business processes	64.8250	23.533	.157	.734
The company experiences decreasing variable costs and/or increasing delivery speed in delivery-related logistics processes.	64.6500	24.541	.117	.731
The elimination of non-value-adding activities in delivery-related processes.	64.8000	24.472	.010	.757
New methods of processing influence profitability	64.6750	23.558	.251	.721
Improved methodology increases sales volume	64.6250	22.599	.377	.709
New, improved processing methods help to meet customer demand, leading to improved sales	64.6750	23.712	.322	.717
Use of technology leads to improved quality and increased market share	64.5000	21.077	.629	.684
Improved maintenance systems /operations for processes reduces processing time/increases sales volume	64.8250	25.840	-.135	.777
New methods of processing influence profitability	64.8500	23.054	.399	.710
Decrease in switching costs of the company's products	64.8250	19.481	.767	.661

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Development of technologically imitative products	64.6500	23.515	.255	.721
Increase in creativity in the design and production of products	64.6250	22.599	.377	.709
The company has a competent workforce	64.8500	19.721	.703	.668
The addition of value-adding activities in production	64.6000	24.297	.159	.728
Reliability Results	0.728 for 16 items			

The results for the Scale Mean if Item Deleted are provided, along with the corresponding results for each individual item listed. The Cronbach's alpha for the 16 items was tested for reliability in the training and development section. The reliability test results indicate that the overall reliability for process innovation is 728 for the 16 items. This value exceeds the threshold of 0.7, suggesting that the research instrument is sufficient and reliable for actual data collection. Therefore, the items related to process innovation are considered adequate and consistent.

4.4.2.3 Reliability on Marketing Innovations Deployment

Table 4.9: Reliability on Marketing Innovation Deployment

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
There are new ways of designing current products through changes such as in appearance, packaging, shape, and volume, without changing their basic technical and functional features.	44.589	44.380	.727	.881
There is a renewed product appearance to appeal to the market.	44.230	44.009	.695	.706
Renewing the distribution channels without changing the logistics processes for product delivery.	44.102	44.068	.593	.887
The enterprise renews product promotion techniques for the current and/or new products.	43.948	43.418	.734	.759
The enterprise product pricing techniques are renewed and employed for current and/or new products.	44.769	41.445	.608	.832
There is a new approach to customer service	44.435	44.110	.645	.805
Significant changes in the existing promotion offers	44.282	44.260	099	.754
Our enterprise has new strategies for product placement or sales channels, such as direct sales	44.461	43.781	.700	.764
Introducing new products in the marketplace enhances the visibility of the new product to customers	44.538	42.308	.688	.880

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
The business prefers a new market strategy	44.102	43.989	.573	.764
The business provides products designed for a specific market segment	44.230	44.287	.685	.817
Reliability result	0.820			

The results for Cronbach's alpha, which measures internal consistency, are presented. Cronbach's alpha for 12 items was tested for reliability in marketing innovation. The reliability test shows that the overall reliability for marketing innovation is 820 for these 12 items. This value is above the threshold of 0.7, indicating that the research instrument is adequate and reliable for actual data collection. Therefore, the items on marketing innovation are deemed adequate and consistent.

4.4.2.4 Reliability on Organizational Innovation

Table 4.10: Reliability on Organization Innovation

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Renewing the routines, procedures, and processes employed to execute firm activities in an innovative manner	46.0769	45.757	.620	.864
Renewing the enterprise technological operations to improve the quality of products and services	46.2821	45.155	.700	.869
There is a new management competency for effective and efficient operations	45.9231	45.599	.538	.864
Renewing the human resources management to foster production in our firm	46.4872	45.046	.668	.851

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
The firm has renewed its in-house information-sharing practice.	46.2821	45.050	.687	.842
The organizational structure has been renewed to facilitate teamwork.	46.0000	45.000	.626	.859
The enterprise renews the organizational structure to facilitate coordination between different functions, such as marketing and horticultural production	46.4615	45.518	.890	.823
Renewing the organizational structure to facilitate the project type Organization.	46.1795	45.414	.450	.858
There is a new organizational structure to facilitate strategic partnerships and long-term business collaborations	46.6410	45.357	.742	.827
Reliability results for Organizational innovation	.863 for 9 items			

In Table 4.10, the scale's Cronbach's alpha would be .863 for all items. The Cronbach's alpha for 9 items was tested for reliability on organizational innovation. Reliability test results show that the overall reliability for organizational innovation is .863 for 9 items. This exceeds the 0.7 threshold, indicating that the research instrument is adequate and reliable for data collection on work-life balance.

4.4.2.5 Reliability on Competitiveness of Food and Beverage Manufacturing Firms

Table 4.11: Reliability on Competitiveness of Food and Beverage Manufacturing Firms

Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Our company has increased sales growth in real terms	29.5000	7.179	.630	.614
The company responds quickly to customers' demands.	27.9250	8.994	.445	.668
Our firm has reported continuous increased enterprise return on investment	27.7250	10.410	.394	.686
There is an increase in low-cost production in the firm	28.0250	10.128	.327	.693
There is growth in employment and human resources	28.8000	7.908	.513	.652
Increased acquisition of new market share	27.6750	10.943	.222	.709
The firm offers unique food and beverages in the market	27.8500	9.515	.494	.662
There are new firm capabilities to gain a competitive edge in the market	27.7250	11.128	.167	.717
Reliability Results	.708	For 8 items		

Overall, Cronbach's alpha for the 15 items on competitiveness was .428, which is well below the .70 threshold. If item 7 is deleted, the overall Cronbach's alpha for the remaining 14 items increases to .564. Removing item 1 from these 14 items results in a Cronbach's alpha of .593, still below the acceptable level. After deleting item 4 from the 13 remaining items, the Cronbach's alpha rises to 608 for 12 items. Deleting the item' improve entry to new markets' results in an overall Cronbach's alpha of .632 for the 11 remaining items. Removing 'Our enterprise has continued gaining new markets'

makes the overall alpha for 10 items .667. Further, removing ‘The company has achieved the turnover objectives’ increases the Cronbach’s alpha to .693. Finally, deleting ‘There is increased production and delivery speed, ' the reliability for 8 items reaches .708, which is above the threshold of .7.

4.4.2.6 Reliability Results Summary

Table 4.12: Reliability Results Summary

Variables	Cronbach's Alpha	No. of Items
Organizations Innovation	.794	9
Processing Innovations	.728	16
Marketing Innovations	.820	12
Organizational Innovations	.863	9
Competitiveness of Food and Beverage	.708	8

The researcher ensured that the questionnaire was designed to enable reliability by providing consistent, stable, and repeatable results. As Wood and Ross (2011) put it, a reliable data collection instrument is adequate and not influenced by chance factors or environmental conditions, and it produces consistent results when repeated over time on the same respondent or when used by two or more investigators. Moreover, reliability is especially a critical issue in quantitative research. Cronbach’s alpha for all variables exceeded 0.7, indicating the instrument was reliable and suitable for data collection. Furthermore, the pilot test results helped identify weaknesses in the instrument and improve its validity and reliability. Pilot testing was conducted to eliminate errors and ambiguity in the questionnaire. An initial pilot investigation was conducted to assess the adequacy of the research design and the questionnaire, including whether the intended respondents understood the questions in the instrument.

4.5 Diagnostic Test

4.5.1 Normality Tests

A normality test was conducted by analyzing skewness and kurtosis (Myoung, 2008).

Table 4.13: Normality Tests

Variable	Skeweness	Ex Kurtosis	Std Deviation	CV
Product development Innovation	.341	-.197	.452	.123
Processing Innovations	.048	-0.518	.453	.109
Marketing Innovations	.135	-0.357	.526	.134
Deployment Organizational Innovations	-0.299	-0.249	.559	.138
Competitiveness of Food and Beverage Firms	-0.380	.243	.864	.101

The skewness of a normal distribution is zero, indicating symmetry. Kurtosis measures the peakness of a data distribution. According to West et al. (2008), the significance threshold for departure from normality is when the absolute skewness exceeds 2.0, and the absolute kurtosis exceeds 7.0. The thresholds for being significantly close to the normal are when skewness and kurtosis values lie between -1.0 and +1.0. From the table, Product Development Innovation has a skewness coefficient of 0.341 and a kurtosis coefficient of -0.197. Processing Innovation has a skewness of 0.048 and a kurtosis of 0.523.

The skewness coefficient for marketing innovations was 0.135, and the kurtosis coefficient was -0.357. Organizational innovations showed a skewness of -0.299 and kurtosis of -0.249. Regarding the competitiveness of Food and Beverage Manufacturing Firms, the processing data had a skewness of -0.380 and a kurtosis of 0.243. This indicates that the distribution of the collected data was approximately normal, as the skewness and kurtosis values fell within the range of -1.0 to +1.0, as noted by Myoung (2008).

4.5.2 Kolmogorov- Smirnov and Shapiro-Wilk Test for Normality

Besides, the Kolmogorov-Smirnov and Shapiro-Wilk tests were performed to further assess normality. The results are presented in Table 4.14

Table 4.14: Kolmogorov- Smirnov and Shapiro Wilk Test for Normality

Variable	Kolgomorov- Smirnov			Shipiro Wilk		
	Statistics	Df	Sig	Statistic	df	Sig
Product development Innovation	.856	239	.0712	.982	239	.453
Processing Innovations	.598	239	.0741	.988	239	.528
Marketing Innovations	.817	239	.316	.986	239	.632
Organizational Innovations	.611	239	.451	.984	239	.196
Competitiveness of Food and Beverage Firms	.382	239	.277	.985	239	.378

The results indicated that the P-values for all variables were greater than .05. This suggests that the collected data were normally distributed. The P-value for Shapiro-Wilk was also greater for the entire variable, indicating normal distribution.

4.5.3 Multicollinearity Test

Testing for Multicollinearity is critical in multiple regression analysis. The study uses the Variance Inflation Factor (VIF) as an indicator of multicollinearity.

Table 4.15: Multicollinearity

Variable, Model	VIF	Torelance (1/VIF)
Product development Innovation	3.745	.2670
Processing Innovations	4.112	.2430
Marketing Innovations Deployment	2.816	.3551
Organizational Innovations	1.945	.5141
Competitiveness of Food and Beverage Firms	1.519	.3184

The study used a VIF threshold of 10, as supported by Garson (2012). A VIF value greater than 10 would indicate multicollinearity. According to Montgomery (2001), a threshold of 10 or above suggests the presence of multicollinearity. Tolerance statistic values below 0.1 indicate a serious problem, and values below 0.2 suggest a potential issue.

The findings in Table 4.15 revealed that the VIF for Product Development Innovation was 3.745, with a tolerance of 0.2670. Processing Innovations had a VIF of 4.112 with a tolerance of .2430. Marketing Innovations had a VIF of 2.816 with a tolerance of .3551. The VIF for Organizational Innovations was 1.945, and its tolerance was 0.5141. The VIF value for the Competitiveness of Food and Beverage Manufacturing firms was 1.519, with a tolerance of .3184. The results showed that VIF values for all independent variables, as well as the dependent variable, were within the threshold of 10, and the tolerance values were above .1. The VIF values indicated no multicollinearity. The tolerance values confirmed that there was no risk of multicollinearity.

4.5.4 Heteroscedasticity and Homoscedasticity Tests

The presence of error variance that varies across observations in a study indicates heteroscedasticity, as shown in the results in Table 4.16.

Table 4.16: Heteroscedasticity and Homoscedasticity Tests

H0	Variable	Chis2(1)	Prov>Chi2
Constant Variance	Product development Innovation	5.86914	.00165
Constant Variance	processing Innovations	6.62149	.12047
Constant Variance	Marketing Innovations	7.10325	.01826
Constant Variance	Organizational Innovations	8.18759	.31735
Constant Variance	Competitiveness of Food and Beverage	6.08941	.29573

The Breusch-Pagan test was used to evaluate the null hypothesis that the error variances are equal across groups and that the error variance follows a multiplicative model involving one or more variables. The test also assesses the null hypothesis that heteroscedasticity is absent, implying homoscedasticity. The criterion for acceptance is a P-value greater than .05; if the P-value is less than .05, the null hypothesis is rejected. A Chi-Square value greater than 9.22 suggests the presence of heteroscedasticity (Sazali, Hashida, Jegak, & Raduan, 2010). According to the results in Table 4, the Chi-Square values for each regression, with each independent variable considered alone, were 5.86914, 6.62149, 7.10325, and 8.18759, indicating that

heteroscedasticity was not present. The null hypothesis tested was that the variance is constant, versus the alternative that the variance is not constant, for the categories of Product Development Innovation, Processing Innovations, Marketing Innovations, and Organizational Innovations.

4.5.5 Breusch-Pagan for Heteroscedasticity

Table 4.17: Breusch-Pagan for Heteroscedasticity

H0	Variable	Chis2(1)	Prov>Chi2
Constant Variable	Product development Innovation Processing Innovations Marketing Innovations Organizational Innovations	6.01597	.001594

In summary, the Chi-Square value of 6.01597 from the overall regression indicates that heteroscedasticity was not present, suggesting that the error variance was constant.

4.5.6 Stationarity Test

An Augmented Dickey-Fuller (ADF) unit root test was conducted to address the problem of spurious regression, and the results are presented in Table 4.18.

Table 4.18: Stationarity Test

Variables	ADF- Statistics	Prob
Competitiveness of SMEs in the Food and beverages	21.65542	.762345
Product development Innovation	41.90828	.657671
Processing Innovations	19.54957	.741193
Marketing Innovations Deployment	35.01112	.803971
Organizational Innovations	27.83443	.649658

The null hypothesis is that there is a unit root or the data is non-stationary. The decision criteria involve comparing the computed (ADF) values with the MacKinnon critical values. If the computed ADF statistic is to the right of the MacKinnon critical values, we do not reject the null hypothesis of non-stationarity; however, if the ADF statistic is to the left, this indicates that the time series is stationary. The results presented in Table 4.18 indicate that the p-values for both the independent and dependent variables

were greater than 0.05. This suggests the presence of a unit root. The null hypothesis states that a unit root does not exist. Therefore, the study accepts the null hypothesis at the level for all the study variables.

4.6 Descriptive Statistic Analysis

Descriptive statistics were used to provide a clear overview of the quantitative and qualitative data of the variables studied before examining their effects in relation to the research expectations. Percentages, means, modes, and standard deviations were used to analyze responses from participants in this study. Statements designed to elicit responses were developed on a five-point Likert scale ranging from 1 to 5, where 1 indicated ‘Strongly disagree’, 2 ‘Disagree’, 3 ‘Neutral’, 4 ‘Agree’, and 5 ‘Strongly agree’.

4.6.1 Descriptive Statistics for Product Innovation

The first objective of this study was to determine the extent of entrepreneurial innovation implemented in Food and Beverage Manufacturing Firms in Nairobi City County. The study aimed to assess the extent to which food and beverage firms have adopted entrepreneurial innovations. The responses are shown in Table 4.19.

Table 4.1: Entrepreneurial Innovations Deployed in Food and Beverage Manufacturing Firms in Nairobi City County

Statement	1	2	3	4	5	Mean	Std Dev
The company's competency base was enlarged	0%	2.6%	21.4%	55.7%	20.3%	3.9375	.72086
The average development costs of products/services/processes have reduced	0.5%	5.2%	12.5%	59.9%	21.9%	3.9740	.77551
The time to market of products / processes was reduced	0%	2.6%	14.1%	51.0%	32.3%	4.1302	.74407
The level of innovativeness of products / processes was Improved	0.5%	8.9%	10.4%	44.8%	35.4%	4.0573	.92767
Sales volume and market acceptance of new products were Improved	0%	2.6%	6.3%	59.9%	31.3%	4.1979	.66506
The company improves the level of safeguarding the quality of its products	0%	3.6%	21.9%	40.1%	34.4%	4.4896	4.14525
The company develops a marketing approach	0%	2.6%	11.5%	46.4%	39.6%	4.2292	.75167
Firm develops quality products for the market	0%	3.6%	17.2%	30.7%	48.4%	4.2396	.86521
Increase in the improvement of existing products	0%	5.2%	21.9%	41.1%	31.8%	3.9948	.86525
Overall						**4.1389**	**1.162283**

The study aimed to identify whether food and beverage enterprises had implemented entrepreneurial innovations. These enterprises demonstrated innovation, as indicated by the first item: most respondents (55.7%) agreed that the companies' development base had expanded; 21.4% were neutral, 20.3% strongly agreed, and 2.6% disagreed. Overall, respondents agreed (Mean=3.9375, SD=0.72086) that entrepreneurial innovations expanded the firm's competency base.

The second item concerned the extent to which average development costs for new products, services, and processes have decreased in food and beverage firms due to entrepreneurial innovation. The results show that most respondents, 59.9%, agreed that these costs have reduced; 21.9% strongly agreed; 12.5% were neutral; 5.2% disagreed; and 0.5% strongly disagreed. Overall, respondents agreed, with a mean of 3.9740 and a standard deviation of 77551, that the average development costs of new products, services, and processes have decreased in the food and beverage sector.

Entrepreneurial innovation plays a critical role in reducing the time required to market and process new products. The third item asked respondents to indicate their level of agreement with the statement that entrepreneurial innovation resulted in a reduction in time spent on marketing or processing new products. The results shown in Table 4 reveal that most respondents, 51.0%, agreed that innovation deployment reduces the time to market for new products and processes; 32.3% strongly agreed, 14.1% were neutral, while 2.6% disagreed. This was supported by a mean of 4.1302 and a standard deviation of 0.74407, indicating that entrepreneurial innovations in the food and beverage sector contributed to reducing the time spent on marketing and processing new products.

The deployment of entrepreneurial innovations is linked to improvements in innovative product development and product processing. Respondents were asked to indicate their level of agreement with the statement that the innovativeness of new products or processing methods had improved. The results in the table show that 44.8% agreed, 35.4% strongly agreed, 10.4% were neutral, 8.9% disagreed, and only 0.5% strongly disagreed. On average, most respondents agreed, as indicated by a mean of 4.0573 and a standard deviation of 0.92767. This suggests that innovation implementation in food and beverage companies contributes to the development of new products and the enhancement of processing techniques.

The study examined the extent to which respondents agreed that business innovation contributed to increased sales volume and improved market acceptance of new products. According to the results in Table 4, 59.9% of respondents agreed that sales volume and market acceptance of new products had improved; 31.3% strongly agreed; 6.3% were undecided; and 2.6% disagreed. On average, respondents agreed, as reflected by a mean of 4.1979 with a standard deviation of 0.66506. This clearly indicates that food and beverage SMEs in Nairobi experience an increase in sales volume and market acceptance of new products.

Entrepreneurial innovations play a vital role in improving product quality. The study aimed to determine the extent of respondents' agreement that the company enhances its level of safeguarding product quality. The results showed that 40.1% agreed, 34.4%

strongly agreed, 21.9% were undecided, and 2.6% disagreed. On average, respondents agreed, with a mean score of 4.1979 and a standard deviation of 0.4526, that the food and beverage sectors in Nairobi City County use entrepreneurial innovations to protect product quality.

Through marketing innovations, firms can develop new approaches to promoting their products. Respondents were asked to indicate their level of agreement with the statement that food and beverage companies develop new marketing strategies in response to business innovations. The results showed that 46.4% of respondents agreed, 39.6% strongly agreed, 11.5% were neutral, while 2.6% disagreed. On average, respondents agreed, with a mean of 4.2292 and a standard deviation of 0.75167, indicating that food and beverage companies develop new marketing strategies due to entrepreneurial innovations. This view is supported by Ustos (2020), who noted that firms' ability to innovate varies significantly by sector, size, focus, resources, and the business environment in which they operate.

Implementation of firm innovations enhances the quality of products offered to the market. Respondents were asked to indicate their level of agreement with the statement, "Food and Beverage Manufacturing Firms develop quality products for the market." The findings show that 48.4% strongly agreed, 30.7% agreed, 17.2% were neutral, and 3.6% disagreed. On average, respondents agreed, as reflected by a mean of 4.2396 with a standard deviation of 0.86521, indicating that through marketing innovations, Food and Beverage firms develop quality products for the market.

A firm focuses on innovation to reengineer or improve existing food and beverage products. Respondents were asked to indicate their level of agreement with the statement that innovation enhances the improvement of existing products. The results showed that 41.1% agreed, 31.8% strongly agreed, while 21.9% and 5.2% were neutral. On average, respondents agreed (mean = 3.9948, standard deviation = 0.86525) that entrepreneurial innovation contributes to improvements in existing products within Food and Beverage Firms in Nairobi City County. This finding aligns with Thomas, Clark, and Gioia (2017), who state that entrepreneurial innovation is crucial for a firm’s competitiveness, providing a competitive edge over others in the

industry. Technological innovation also plays a strategic role in helping firms enter new markets and strengthen their competitive position. Overall, respondents agreed that product innovation is widely implemented in food and beverage manufacturing firms, as indicated by a mean of 4.1389 and a standard deviation of 1.162283. This suggests that product innovations are extensively carried out to achieve competitiveness in the food and beverage industry.

4.6.2 Descriptive Statistics for Product Innovation Deployment

The study sought the extent to which Food and Beverage Manufacturing Firms deployed Product Innovations. The descriptive results are presented in Table 4.20.

Table 4.20: Descriptive Statistics for Product Innovation Deployment

Statement on New Product Development Innovation	1	2	3	4	5	Mean	Std Dev
There are new products being processed due to the adoption of technology adoption	%	3.6%	9.9%	33.3%	53.1%	4.3594	.80640
There is an increase in the number of value-added products	0%	2.2%	9.8%	40.6%	47.4%	4.3281	.75310
There is increase number of newly designed products	0%	3.5	12.6%	43.8%	40.1%	4.2031	.79619
There is an increase in ingredients used in producing new products	0%	6.3%	3.1%	49.0%	41.7%	4.2604	.79586
There is an increase in new product lines in our company	0%	5.2%	7.8%	46.4%	40.6%	4.2240	.80369
The new products have new technical features	0%	2.4%	3.3%	44.3%	50.0%	4.4844	.34685
The new product is designed with the expectation of customers	0%	0%	13.0%	52.6%	34.4%	4.2135	.65620

Statement on New Product Development Innovation	1	2	3	4	5	Mean	Std Dev
New products are differentiated by price	0%	6.3%	13.0%	33.9%	46.9%	4.2135	.89865
New products have a different taste	0%	2.3%	9.7%	52.1%	35.9%	4.2135	.71720
There is an improved quality of existing products	0%	3.6%	4.7%	41.1%	50.5%	4.3854	.74313
Overall Product Innovation Deployment						**4.28853**	**0.731727**

The study aimed to determine the level of agreement on the extent of product innovation deployment in Food and Beverage Manufacturing Firms in Nairobi City County. Regarding item 1, 53.1% of respondents agreed that new products are processed due to technology use, 33.3% agreed, 9.9% were neutral, and 3.6% disagreed. Overall, respondents agreed, as reflected by a mean of 4.3594 and a standard deviation of 0.80640, that Food and Beverage companies develop new products due to technology adoption.

Product innovations drive the development of new products within enterprises. Respondents were asked to agree on whether there was an increase in the number of new value-added products. The results showed that 47.4% strongly agreed, 40.6% agreed, 9.8% remained neutral, and 3.6% disagreed. Overall, respondents agreed that the number of new value-added products increased, as indicated by a mean of 4.3281 and a standard deviation of 0.75310.

The third item concerned whether there was an increase in the number of new designed products. According to the findings, 43.8% of respondents agreed, 40.1% strongly agreed, 12.6% were neutral, and 3.5% disagreed. On average, respondents agreed that there is an increase in the number of new designed products in Food and Beverage in Nairobi City County, indicated by a mean of 4.2031 and a standard deviation of 0.79619.

The study aimed to determine the level of agreement on the item; there is an increase in ingredients used in producing new products in the Food and Beverage industry in Nairobi City County. The findings, summarized in the table, showed that 49.0% of respondents agreed, 41.7% strongly agreed, 3.1% were neutral, and 6.3% disagreed. Overall, respondents indicated agreement, with a mean of 4.2604 and a standard deviation of 0.79586, that there is an increase in the use of ingredients in the production of new products in Food and Beverage manufacturing firms in Nairobi City County. Hajar (2015) surveyed the correlation between innovation and performance of SMEs in Indonesia that manufacture wooden furniture. The study revealed that an innovative strategy had positive effects on performance.

The study aimed to assess respondents' agreement on whether there has been an increase in new product lines among Food and Beverage Firms in Nairobi City County. The results showed that 46.4% of respondents agreed, 40.6% strongly agreed, 7.8% were neutral, and 5.2% disagreed. With a mean of 4.2240 and a standard deviation of 0.80369, respondents generally agreed that there is an increase in new product lines among Food and Beverage Firms in Nairobi City County.

The introduction of new product features is an indicator that product innovation has been implemented within an enterprise. The respondents were asked to indicate their level of agreement with the statement that there are new products with new technical features in Food and Beverage Manufacturing Firms in Nairobi City County. According to the findings, 50.0% strongly agreed, 44.3% agreed, 303% remained undecided, while 2.4% disagreed. On average, respondents agreed, as indicated by a mean of 4.4844 with a standard deviation of 0.34685, in Nairobi City County. Atalay (2013) discovered that business positioning through innovation is closely related to SMEs' performance. The study established that new product and process strategies have a significant influence on firms’ performance.

Regarding whether new products were differentiated by price, most respondents—46.9% strongly agreed, 33.9% agreed, 13.0% were neutral, and 6.3% disagreed. Overall, respondents agreed, indicated by a mean of 4.2135 with a standard deviation

of 0.89865, that new products in Food and Beverage Manufacturing Firms in Nairobi City County are differentiated by price.

Product innovation is indicated by the development of new products with different flavours. The study examined the extent to which respondents agreed that there are new products with different tastes in Food and Beverage Manufacturing Firms in Nairobi City County. The findings show that 52.1% of respondents agreed, 35.9% strongly agreed, 9.7% were undecided, and 2.3% disagreed. Overall, respondents agreed, with a mean score of 4.2135 and a standard deviation of 0.71720, indicating that Food and Beverage Manufacturing Firms in Nairobi City County offer new products with different tastes.

Product innovations lead to improvements in the quality of existing products within an enterprise. The study examines the level of agreement among respondents regarding whether the quality of existing products has improved in the Food and Beverage firms in Nairobi City County. The results show that 50.5% of respondents strongly agreed, 41.1% agreed, 4.7% were neutral, and 2.3% disagreed. On average, respondents agreed, with a mean of 4.3854 and a standard deviation of .74313, indicating an overall perception of improved product quality in Food and Beverage manufacturing firms in Nairobi City County. Product innovations have been implemented to enhance competitiveness in these firms, with a mean of 4.28853 and a standard deviation of 0.731727. This aligns with Oke et al. (2007), who studied UK firms and concluded that new products positively affect firm performance. Similarly, Atlay, Anafarta, and Sarvan (2013) investigated firms in Turkey's automotive supplier industry and found that new products significantly positively affect firm performance. Belderbos, Duvivier, and Wynen (2010) examined innovation and export competitiveness in Flemish companies, analyzing how innovation influences export intensity and growth through both cross-sectional and panel data of 733 firms.

4.6.3 Descriptive Statistics for Process Innovation

The study examined the extent to which Food and Beverage Manufacturing Firms deployed process innovations. The descriptive results are shown in Table 4.21.

Table 4.21: Descriptive Statistics for Process Innovation Measures

Process Innovation	1	2	3	4	5	Mean	Std Dev
Determining non-value adding activities to improve efficiency in production processes	%	2.6%	10.4%	51.0%	35.9%	4.2031	.72746
Reduction of variable cost components in production and processes, techniques, machinery, and software	%	%	18.8%	53.1%	28.1%	4.0938	.67998
Increasing output quality in business processes	%	2.6%	12.5%	37.0%	47.9%	4.3021	.78760
The company experiences decreasing variable costs and/or increasing delivery speed in delivery-related logistics processes.	%	%	12.5%	55.2%	32.3%	4.1979	.64100
The elimination of non-value-adding activities in delivery-related processes.	%	3.1%	17.2%	35.4%	44.3%	4.2083	.83656
New methods of processing influence profitability.	%	2.1%	11.5%	42.7%	43.8%	4.2708	.76547
Improved production methodology increases sales volume.	%	2.6%	13.5%	44.8%	39.1%	4.2031	.76944
New, improved processing methods help to meet customer demand, leading to improved sales.	%	%	7.8%	54.7%	37.5%	4.2969	.60572

Process Innovation	1	2	3	4	5	Mean	Std Dev
Use of technology leads to improved quality and increased market share.	%	1.2%	13.4%	35.4%	50.0%	4.3281	.78710
Improved maintenance systems /operations for processes reduces processing time/increases sales volume	0%	1.3%	9.7%	35.4%	53.6%	4.3698	.84613
New methods of processing influence profitability.	%	4.7%	1.6%	62.0%	31.8%	4.2083	.69277
Decrease in switching costs of the company's products.	%	%	0%	49.5%	50.5%	4.3594	.72431
Development of technologically imitative products	%	0%	5.7%	45.8%	48.4%	4.3490	.70755
Increase in creativity in product design and production.	%	%	0%	38.5%	61.5%	4.3437	.70641
The company has a competent workforce.	%	%	16.7%	40.6%	42.7%	4.2604	.72711
The addition of value-adding activities in production	%	%	3.1%	52.1%	44.8%	4.4167	.55422
Overall						**4.275713**	**0.722427**

Enterprises implement process innovation to boost their competitiveness. The study aimed to assess respondents' agreement on whether process innovation helps identify non-value-adding activities to improve efficiency in production processes within Food and Beverage Firms in Nairobi City County. The results showed that 51.0% of respondents agreed, 35.9% strongly agreed, 10.4% were undecided, and 2.6% disagreed. Overall, respondents agreed, as reflected by a mean of 4.2031 and a standard deviation of 0.72746, indicating that process innovation helps identify non-value-adding activities to enhance efficiency in production processes within Food and

Beverage Firms in Nairobi City County. Krajewski (2010), in their study of SMEs in Finland, found that process innovation is positively correlated with firm performance.

The second item examined the respondents' agreement on whether Food and Beverage Firms in Nairobi City County experienced reductions in variable cost components related to production, processes, techniques, machinery, and software. According to the results, 53.1% of the respondents agreed, 28.1% strongly agreed, while 18.8% were neutral. Overall, respondents agreed, as reflected by a mean of 4.0938 and a standard deviation of 0.67998, indicating a perceived reduction in variable cost components among Food and Beverage Firms in Nairobi City County.

Item three asked respondents for their level of agreement on whether there was an increase in output quality in business processes within Food and Beverage Manufacturing firms in Nairobi City County. According to the findings, 47.9% of respondents strongly agreed, 37.0% agreed, 12.5% were neutral, and 2.6% disagreed. Overall, respondents agreed, as reflected by a mean of 4.3021 and a standard deviation of 0.78760, indicating an increase in output quality in the business processes of Food and Beverage firms in Nairobi City County.

The fourth indicator was whether Food and Beverage Firms experienced decreasing variable costs and/or increasing delivery speed in logistics processes. From the findings, most respondents (55.2%) agreed that Food and Beverage Firms experience decreasing variable costs and/or increasing delivery speed in delivery-related logistics processes, while 32.3% strongly agreed and 12.5% remained undecided. On average, with a mean of 4.1979 and a standard deviation of 0.64100, Food and Beverage Manufacturing Firms are believed to experience decreasing variable costs and/or increasing delivery speed in delivery-related logistics processes.

The fifth indicator of process innovation was the elimination of non-value-adding activities in delivery-related processes. The respondents were asked to indicate their level of agreement with the elimination of non-value-adding activities in delivery-related processes. The findings showed that 44.3% of respondents strongly agreed, 35.4% agreed, 17.2% were neutral, and 3.1% disagreed with this elimination. On average, respondents agreed, as indicated by a mean of 4.2083 and a standard deviation

of 0.83656, that the elimination of non-value-adding activities in delivery-related processes occurs in Food and Beverage Manufacturing Firms in Nairobi City County.

Process innovations are linked to the development of methods that improve product processing to enhance enterprise profitability. The respondents were asked to indicate the extent to which they agree that new processing methods influence profitability in Food and Beverage firms in Nairobi City County. The results showed that 43.8% strongly agreed, 42.7% agreed, 11.5% were neutral, while 2.1% disagreed. On average, respondents supported the statement with a mean of 4.2708 and a standard deviation of .7547, indicating that new processing methods influence profitability in Food and Beverage firms in Nairobi City County.

Enterprise process innovations influence firms to improve their production methods, which can increase sales volumes. The respondents were asked to indicate their level of agreement with the statement that process innovation enabled the enterprise to adopt an improved methodology that boosts sales volume. The results showed that 44.8% of respondents agreed, 39.1% strongly agreed, 13.5% were neutral, and 2.6% disagreed. Overall, respondents agreed, as reflected by a mean score of 4.2031 with a standard deviation of .76944.

The study examined respondents' agreement with the statement that new, improved processing methods help meet customer demand and increase sales. Results showed that 54.7% agreed, 37.5% strongly agreed, and 7.8% were neutral. Overall, respondents agreed, as indicated by a mean of 4.2969 and a standard deviation of 0.60572, that new, improved processing methods help meet customer demand and boost sales for Food and Beverage firms in Nairobi City County.

The use of technology to improve product quality in enterprises is driven by process innovation. The respondents were asked to indicate their level of agreement with the statement that the use of technology results in better quality and increased market share in Food and Beverage firms in Nairobi City County. According to the results, 50.0% of respondents strongly agreed, 35.4% agreed, 13.4% were neutral, and 1.2% disagreed. A mean of 4.3281 and a standard deviation of 0.78710 suggest that most

respondents agree that the use of technology enhances quality and market share in Food and Beverage Manufacturing Firms in Nairobi City County.

The study examined whether improved maintenance systems and operations for processes reduce processing time and increase sales volume due to process innovations in Food and Beverage firms in Nairobi City County. Results show that 53.6% of respondents strongly agreed that improved maintenance systems and operations lead to reduced processing time and increased sales. Additionally, 35.4% agreed, 9.7% were neutral, and 1.3% disagreed. On average, respondents agreed, as indicated by a mean of 4.3698 with a standard deviation of 0.84613, that improved maintenance systems and operations for processes reduce processing time and increase sales volume due to process innovations in Food and Beverage firms in Nairobi City County.

Regarding the item, new processing methods affect profitability. The study revealed that 62.0% of respondents agreed, 31.8% strongly agreed, 1.6% were neutral, while 4.7% disagreed. On average, with a mean of 4.2083 and a standard deviation of 0.69277, respondents agreed that new processing methods influence profitability innovations in Food and Beverage Manufacturing firms in Nairobi City County.

Product innovations reduce the switching costs of enterprise products. The study aimed to determine whether switching costs for products in Food and Beverage firms in Nairobi City County have decreased. The results showed that 50.5% of the respondents strongly agreed that switching costs had decreased, while 49.5% agreed. Overall, respondents indicated agreement, with a mean of 4.3594 and a standard deviation of 0.72431, suggesting a decrease in product switching costs among Food and Beverage firms in Nairobi City County.

The results in Table 4 show that 48.4% of respondents strongly agreed that there was development of technologically imitative products in Food and Beverage firms in Nairobi City County, 45.8% agreed, while 5.7% remained neutral. The study also revealed that most respondents agreed, as indicated by a mean of 4.3490 and a standard deviation of 0.70755, that there was development of technologically imitative products at Food and Beverage manufacturing firms in Nairobi City County.

The findings revealed that 61.4% of respondents strongly agreed that there was an increase in creativity in designing and producing products, while 38.5% agreed. Overall, respondents agreed, as supported by a mean of 4.3437 and a standard deviation of 0.70641, that there was an increase in creativity in the design and production of products in Food and Beverage firms in Nairobi City County.

Having a competent workforce is an indicator of the deployment of process innovation aimed at increasing firm competitiveness. The results show that 42.7% of respondents strongly agree that Food and Beverage firms in Nairobi City County have a competent workforce, 40.6% agree, and 16.7% are neutral. On average, respondents agree, supported by a mean of 4.2604, that having a competent workforce is an indicator of process innovation in Food and Beverage manufacturing firms in Nairobi City County.

Value addition in the production process is an indicator of process innovation implementation in Food and Beverage firms in Nairobi City County. The study aimed to determine the extent to which respondents agreed that value-adding activities have been incorporated into production in these firms. The results showed that 52.1% of respondents agreed, 44.8% strongly agreed, and 3.1% were neutral. On average, respondents agreed, with a mean of 4.4467 and a standard deviation of 0.55422, indicating value-adding activities in production. Overall, the study revealed that respondents believed process innovation was widely adopted to enhance competitiveness, as indicated by a mean of 4.275713 and a standard deviation of 0.722527. This suggests that process innovation contributes to competitiveness through improved processing in the food and Beverage firms in Nairobi City County. Sidek and Rosli (2013) conducted a study on the “impact of Innovation on the performance of Small and Medium Manufacturing Enterprises in Malaysia.” Their findings indicate that process innovation positively influences firm performance. The study recommended that firms adopt innovation to boost their performance. Sauli (2014) conducted a study in Finland and found that innovative skills had a slight influence on SME performance.

4.6.4 Descriptive Statistics for Marketing Innovation

The study examined the extent to which Food and Beverage Manufacturing Firms deployed marketing innovations. The descriptive results are presented in Table 4.22.

Table 4.22: Descriptive Statistics for Marketing Innovation

Marketing Innovation statement	1	2	3	4	5	Mean	Std Dev
There are new ways to design current products by changing their appearance, packaging, shape, and volume without altering their basic technical and functional features.	1.6%	1.0%	11.5%	43.2%	42.7%	4.2448	.81701
There is a renewed product appearance to appeal to the market.	0%	0%	9.9%	35.4%	54.7%	4.4219	.74084
Renewing the distribution channels without changing the logistics processes for product delivery.	0%	%	5.7%	43.8%	50.5%	4.4479	.60313
The enterprise renews product promotion techniques for the current and/or new products.	0%	%	24.0%	41.1%	34.9%	4.1094	.76131
Enterprise product pricing techniques are updated and applied to current and/or new products.	0%	2.6%	7.3%	45.3%	44.8%	4.3229	.72350

Marketing Innovation statement	1	2	3	4	5	Mean	Std Dev
There is a new approach to customer service	0%	0%	8.3%	33.3%	58.3%	4.5000	.64718
Significant changes in the existing promotion offers	0%	2.6%	14.1%	43.2%	40.1%	4.2083	.77819
Our enterprise has new strategies for product placement or sales channels, such as direct sales	0%	1.6%	13.0%	32.8%	52.6%	4.3542	.79236
Introducing new products in the marketplace enhances the visibility of the new product to customers	0%	5.2%	7.8%	32.8%	54.2%	4.3594	.83823
The business prefers a new market strategy	0%	0%	5.2%	45.8%	49.0%	4.4375	.59338
The business provides products designed for a specific market segment	0%	2.5%	7.9%	35.4%	54.2%	4.4115	.74670
There are new brands of products and services from our enterprise	0%	0%	7.3%	64.6%	28.1%	4.2083	.55892
Overall						**4.335508**	**0.716729**

Marketing innovations are implemented in enterprises to enhance competitiveness. Respondents were asked to indicate how much they agree with the statement that, within Food and Beverage Manufacturing Firms, their new ways of designing current food and beverage products—such as changes in appearance, packaging, shape, and volume—do not alter their basic technical and functional features. The results show that 43.2% agreed, 42.7% strongly agreed, 11.5% were neutral, 1.0% disagreed, and 1.6% strongly disagreed. On average, respondents agreed, as evidenced by a mean of 4.2448 and a standard deviation of 0.81701, that there are new ways to design these

products without changing their core features in Food and Beverage Manufacturing Firms in Nairobi City County. Atalay, Anafarta, and Sarvan (2013) studied the relationship between innovation and firm performance through empirical evidence from the Turkish automotive supply industry. The analysis showed that technological innovation (product and process) has a significant and positive impact on firm performance, but no significant and positive relationship was found between non-technological innovation (organizational and marketing) and firm performance. The findings in Tunisia cannot be generalized to the Kenyan context. According to Johne & Davies (2000), marketing innovations increase sales by boosting product consumption, which leads to higher profits for the firm.

Marketing innovations are linked to updates in product appearance designed to appeal to the market. The study assessed the level of agreement with the statement that there is a renewed food and beverage product appearance to attract the market for Food and Beverages SMEs in Nairobi City County. Results showed that most respondents, 54.7%, strongly agreed; 35.4% agreed; and 9.9% were neutral regarding the idea that there is a renewed food and beverage product appearance to attract the market for Food and Beverage Manufacturing Firms in Nairobi County. On average, respondents agreed, as indicated by a mean of 4.4219 and a standard deviation of 0.74084, that there is a renewed food and beverage product appearance to appeal to the market for Food and Beverage Manufacturing Firms in Nairobi City County.

Marketing innovations contribute to the renewal of distribution channels in Food and Beverage Manufacturing Firms without altering the logistics processes involved in product delivery. Respondents were asked to indicate their level of agreement with the statement that renewing the distribution channels occurs without changing the logistics processes related to the delivery of Food and Beverage firms' products. The findings show that 50.5% of respondents strongly agreed, 43.8% agreed, while 24.0% remained neutral. Overall, respondents agreed, as reflected by a mean of 4.4479 and a standard deviation of 0.60313, that distribution channels can be renewed without modifying the logistics processes for delivering Food and Beverage firms' products.

The study assessed respondents' level of agreement with the statement that Food and Beverage firms renew their product promotion techniques for current and/or new products. The findings showed that 41.1% agreed, 34.9% strongly agreed, and 24.0% were neutral with respect to this statement. The mean of 4.1094 and the standard deviation of 0.76131 indicated that overall, respondents agreed that Food and Beverage firms renew their product promotion techniques for current and/or new products. This demonstrated that Food and Beverage firms deploy marketing innovations that lead to the renewal of their product promotion techniques for current and/or new products.

Marketing innovations facilitate the renewal of enterprise product pricing techniques for current and/or new products. Respondents were asked to indicate their level of agreement with the statement that the Food and Beverage firm's product pricing techniques are renewed for current and/or new products: 45.3% agreed, 44.8% strongly agreed, 7.3% were neutral, and 2.6% disagreed. Overall, respondents agreed, as reflected by a mean of 4.3229 and a standard deviation of 0.72350, that the Food and Beverage firm's product pricing techniques are continually renewed for current and/or new products.

The study examined respondents' agreement on the existence of a new approach to customer service in Food and Beverage firms. The results showed that most respondents, 58.3%, strongly agreed; 33.3% agreed; and 8.3% were neutral. Overall, respondents strongly agreed, as indicated by a mean of 4.5000 and a standard deviation of .64718, suggesting a new approach to customer service in Food and Beverage firms in Nairobi City County.

Marketing innovations lead to significant changes in existing promotion offers. The respondents were asked to indicate their level of agreement with the statement that there were notable changes in the promotion offers of Food and Beverage firms in Nairobi City County. Results showed that 43.2% of respondents agreed, 40.1% strongly agreed, 12.0% were neutral, and 2.6% disagreed. Overall, respondents agreed, as reflected by a mean of 4.2083 and a standard deviation, indicating significant changes in promotion offers among Food and Beverage firms in Nairobi City County.

Otero-Neira et al. (2009), in their study on “Innovation and Performance in SME Furniture Industries,” found strong evidence that market innovation positively influenced business performance. Similarly, Bryman & Bell (2012), in their study of SMEs in Finland, confirmed a robust, significant relationship between marketing innovation and firm performance. However, Sidek and Rosli (2013), in their study on “the impact of Innovation on the performance of Small and Medium Manufacturing Enterprises in Malaysia,” concluded that new markets did not have significant effects on firm performance.

The study examined the level of agreement with the statement that Food and Beverage firms have new strategies for product placement or sales channels, such as direct sales. The results showed that most respondents, 52.6%, strongly agreed with this statement, while 32.8% agreed, 12.0% were neutral, and 1.6% disagreed. Overall, respondents agreed, as indicated by a mean of 4.3542 and a standard deviation of .79236, that Food and Beverage firms have adopted new strategies for product placement or sales channels, such as direct sales.

The deployment of marketing innovations in enterprises helps introduce new products to the market. The respondents were asked to indicate their level of agreement with the statement, 'introducing new products in the marketplace enhances the visibility of the product to customers.' According to the findings, 54.2% strongly agreed, 32.8% agreed, 7.8% were neutral, and 5.2% disagreed. Overall, respondents agreed, as indicated by a mean of 4.3594 and a standard deviation of 0,83823, that launching new products in the marketplace increases visibility toward customers in Food and Beverage companies.

The study examined the extent to which respondents agreed that Food and Beverage firms prefer a new market strategy because of the deployment of marketing innovations. Results showed that 49.0% strongly agreed with this statement, 45.8% agreed, and 5.2% were neutral. Overall, respondents tended to agree, with a mean of 4.4375 and a standard deviation of 0.59338, indicating a general consensus that these firms favor new market strategies driven by marketing innovations.

The study also examined respondents' levels of agreement with the statement that Food and Beverage firms offer products tailored for a specific market segment. Results showed that 54.2% strongly agreed, 35.4% agreed, 7.8% were neutral, and 2.5% disagreed. Overall, respondents generally agreed, reflected by a mean of 4.4115 and a standard deviation of 0.74670, supporting the view that Food and Beverage firms provide products designed for a specific market segment.

Finally, the study measured respondents' agreement with the statement that there are new brands of products and services from our enterprise due to marketing innovation in the food and beverage industry. Results showed that 64.6% agreed, 28.1% strongly agreed, and 7.3% were neutral. The average response was at an agreement level, with a mean of 4.2083 and a standard deviation of 0.55892, indicating that respondents generally acknowledged the introduction of new branding driven by marketing innovation in Food and Beverage firms in Nairobi City County. Overall, respondents agreed that marketing innovations are used to achieve competitiveness in these firms, as reflected by a mean of 4.335508 with a standard of 0.716729.

4.6.5 Descriptive Statistics for Organizational Innovation

The study examined the extent to which Food and Beverage Manufacturing firms deployed process innovations. The descriptive results are presented in Table 4.23.

Table 4.23: Descriptive Statistics for Organizational Innovations

Organization Innovation	1	2	3	4	5	Mean	Std Dev
Renewing the routines, procedures, and processes employed to execute firm activities in an innovative manner	0%	0%	14.1%	46.9%	39.1%	4.2500	.68644
Renewing the enterprise technological operations to improve the quality of products and services	0%	0%	18.2%	32.3%	49.5%	4.3125	.76319
There is a new management competency for effective and efficient operations	0%	0%	9.4%	52.1%	38.5%	4.2917	.62941
Renewing the human resources management to foster production in our firm	0%	0%	21.4%	45.3%	33.3%	4.1198	.73165
The firm has renewed in-firm information sharing practice.	0%	0%	26.6%	41.7%	31.8%	4.0521	.76398
There are renewed the organization structure to facilitate teamwork.	0%	0%	6.8%	47.9%	45.3%	4.3854	.61175
The enterprise renews the organizational structure to facilitate coordination between different functions, such as marketing and the food and beverage process	0%	0%	18.8%	43.2%	38.0%	4.1927	.73031
Renewing the organizational structure to facilitate operations in the Organization.	0%	2.6%	14.1%	53.1%	30.2%	4.1094	.73329
There is a new organizational structure to facilitate strategic partnerships and long-term business collaborations	0%	0%	19.8%	38.5%	41.7%	4.2188	.75478
Overall						**4.214711**	**0.711644**

Manufacturing firms deploy organizational innovation to enhance their competitiveness. Respondents were asked to indicate their level of agreement with the statement regarding the renewal of routines, procedures, and processes used to carry out firm activities in an innovative way within food and beverage firms in Nairobi City

County. As shown in Table 4.26, 46.1% agreed, 39.1% strongly agreed, and 14.1% were neutral. On average, respondents agreed, with a mean score of 4.2500 supported by a standard deviation of 0.68644. This clearly indicates that organizational innovation leads to the renewal of routines, procedures, and processes used to perform activities in food and beverage firms innovatively.

For the second item, respondents were asked to indicate their level of agreement with the statement that renewing food and beverage firms' technological operations improves the quality of products and services. The results showed that most respondents, 49.5%, strongly agreed, 32.3% agreed, while only 18.2% were undecided. This was supported by a mean of 4.3125 and a standard deviation of 0.76319, indicating that renewing the enterprise's technological operations improves the quality of products and services. This demonstrates that food and beverage firms engage in organizational innovation, as evidenced by their renewal of technological operations to enhance quality. Wahab and Jabar (2016) studied organizational innovation strategies for SMEs in Malaysia. Their findings suggest that different types of innovation have varying impacts on organizational performance. Innovations can help SMEs in Malaysia sustain and thrive in a dynamic and challenging economy. Njenga (2015) studied the new organizational and operational performance of SMEs in Nairobi County. The study found that innovation is widely practiced, with factors such as competitive pressures and market segments significantly influencing its adoption. The study established that innovation leads to improved operational performance in the firms studied. While this study focused on new organizational practices, the current study examines four types of innovation.

The third item assessed respondents' agreement with the statement that there is a new management competency for effective and efficient operations in Food and Beverage manufacturing firms in Nairobi City County. The results showed that 52.1% agreed, 38.5% strongly agreed, and 9.4% were neutral. On average, with a mean of 4.217 and a standard deviation of 0.62941, respondents agreed that new management competency is crucial for effective and efficient operations in Food and Beverage firms in Nairobi City County.

The renewal of human resources management aimed at boosting production in the food and Beverage sectors demonstrated organizational innovativeness. Respondents were asked to express their level of agreement with the notion that such renewal was occurring to enhance production in these firms. The results indicated that 45.3% agreed, 33.3% strongly agreed, while 24.4% remained neutral. The average response, with a mean of 4.1198 and a standard deviation of 0.73165, reflected a general acknowledgment of this renewal effort. A study by Osunga and Namanda (2016) concludes that innovations in marketing have a strong positive relationship with SME performance, as customer needs and preferences continually evolve. Although this research is based in Malaysia, a more developed country than Kenya, the principles are applicable globally. Organizational methods aim to improve a firm's performance by reducing administrative or transaction costs, increasing workplace satisfaction, gaining access to non-tradable assets (such as non-codified external knowledge), or lowering supply costs (OECD, 2005). Lin & Chen (2007) argued that organizational innovations, rather than technological innovations, are most critical for overall sales.

Renewal of information-sharing practices is a key factor in organizational innovativeness. The study aimed to assess how much respondents agreed with the statement: " The food and beverage manufacturing firms have renewed in-firm information sharing practices. " The results showed that 41.7% agreed, 31,8% strongly agreed, while 26.6% were neutral. On average, respondents agreed, as reflected by a mean of 4.0521 and a standard deviation of 0.76398, indicating that the firm has renewed its in-firm information-sharing practices. Lin and Chen (2007), in their study on innovation and performance, found that organizational innovation positively affects firm performance. Mensah and Acquah (2015), in their study titled "The Effect of Innovation Types on the Performance of SMEs in Takoradi Metropolis," also found a positive and significant relationship between organizational innovation and firm performance. Njenga (2015) examined organizational innovation and operational performance of SMEs in Nairobi County. The study revealed that innovation is widely practiced, and factors such as competitive pressures and market segments strongly influence its adoption.

The renewal of the organizational structure is successful due to the deployment of organizational innovations. Respondents were asked to indicate their level of agreement with the statement that the organization had renewed its structure to facilitate teamwork. The results show that 47.9% agreed, 45.3% strongly agreed, and 6.8% were neutral. This indicates that food and beverage manufacturing firms are renewing their organizational structures to promote teamwork and remain competitive in the market. Wahab & Jabar (2016) studied organizational innovation strategies for SMEs in Malaysia. The findings indicate that different types of innovation have different impacts on organizational performance.

The renewal of organizational structures is a form of organizational innovation used in Food and Beverage companies. Respondents were asked to indicate how much they agree with the statement that the company renews its organizational structure to improve coordination across functions, such as marketing and food and beverage operations. The results showed that 43.2% of respondents agreed, 38.0% strongly agreed, and 18.8% were neutral. Overall, respondents agreed, with a mean of 4.1927 and a standard deviation of 0.73031, supporting the idea that the enterprise renews its organizational structure to enhance coordination among functions such as marketing and food and beverage operations.

The Food and Beverage firms implement organizational innovation by renewing their enterprise structure to improve operations. Respondents were asked to indicate their level of agreement with the statement that renewing the organizational structure facilitates operations within the organization. The results show that most (53.1%) agreed; 30.2% strongly agreed; 14.1% were neutral; and 2.6% disagreed. On average, respondents agreed, with a mean of 4.1094 and a standard deviation of 0.73329.

The study examined the extent to which respondents agreed with the statement that new organizational structures facilitate strategic partnerships and long-term business collaborations. The results showed that 41.7% strongly agreed, 38.5% agreed, and 19.8% were neutral regarding the existence of new organizational structures to support strategic partnerships and collaborations. On average, respondents agreed, as indicated by a mean of 4.2188 and a standard deviation of .75478.

Overall, respondents agreed, as indicated by a mean of 4.214711 and a standard deviation of 0.711644, that organizational innovations were implemented to achieve competitiveness in Food and Beverage firms in Nairobi City County. This suggests that organizational innovations are sought to enhance competitiveness in Food and Beverage manufacturing firms. Chege, Wang, and Suntu (2020) state that new organizations involve all administrative efforts to change routines, procedures, and systems. This innovation aims to improve outcomes by reducing administrative or transactional costs, enhancing workplace satisfaction, gaining access to external knowledge, or lowering supply costs. Organizations are typically led by founders with limited resources and operate in highly volatile environments. Success and sustainability, therefore, require exceptional effort from all stakeholders, creating a significant need for extraordinary leadership capabilities.

4.6.6 Descriptive Statistics for Firm Size

Table 4.24: Descriptive Statistics for Firm Size

Variable	Obs(n)	Mean	Std.Dev.	Min	Max
Total Sales	768	.3234	.1124	.0036	.9563
Customer Base	768	.2926	.4196	.0254	.6167
Total Assets	768	. 1418	.1704	.0130	.4769

Table 4.24 above shows that there were 768 observations for sales, with a mean of .3234. This indicates that sales increased by 32.34% on average during the period under review. The sales growth had a standard deviation of .1124, ranging from a minimum of .0036 to a maximum of 0.9563. Regarding the customer base, Table 4.3 indicates that 768 observations were recorded. The mean increase was .2926, meaning an average growth of 29.26%, with a standard deviation of 4,196. The results further reveal that the asset base had a mean of 0, with a standard deviation of .1704, a minimum mean increase of .0130, and a maximum of .4769. This suggests that the minimum increase in the asset base was 1.704%, while the maximum change during the period was 47.69%. These findings align with the results of the study by International Trade Center (2009), which states that the competitiveness grid measures SME's competitiveness through cost, time, quality, and quantity efficiency.

4.6.7 Descriptive Statistics Results for Competitiveness of Food and Beverage Manufacturing Firms

Table 4.25: Competitiveness Achieved in Firms

Statement	1	2	3	4	5	Mean	Std Dev
Our company has increased sales growth in real terms	2.1%	0.5%	8.3%	45.3%	43.8%	4.3250	.79213
The company makes a quick response to customers' demands	1.0%	27.6%	15.6%	22.9%	32.8%	3.5885	.53325
Our firm has reported continuous increased enterprise return on investment	2.6%	2.6%	7.8%	44.8%	42.2%	4.2135	.89280
There is an increase in low-cost production in the firm	2.1%	0%	16.7%	41.7%	39.6%	4.1667	.85206
There is growth in employment and human resources.	%	2.5%	14.7%	54.2%	28.6%	4.0885	.72896
The firm offers unique food and beverages in the market.	%	%	14.1%	53.6%	32.3%	4.1823	.65770
The firm offers quality food and beverages in the market	2.5%	2.7%	12.5%	47.4%	34.9%	4.0937	.89884
There are learning and strategic critical success capabilities to gain a competitive edge in the market	0%	0%	5.7%	53.1%	41.1%	4.3542	.58746
Overall						**4.12655**	**0.7429**

Business innovation has been identified as a precursor to a firm's competitiveness in the market. The study examined the extent to which business innovations are

implemented in Food and Beverage firms in Nairobi City County. The results showed that respondents were asked to indicate their level of agreement with the statement that, through business innovation, Food and Beverage firms have increased sales growth in real terms. Among the respondents, 45.3% agreed, 43.8% strongly agreed, 8.3% were neutral, 0.5% disagreed, and 2.1% strongly disagreed. On average, with a mean of 4.3250 and a standard deviation of 0.79213, respondents agreed that Food and Beverage firms have increased sales growth in real terms in Nairobi City County.

Response to customer demands is a measure of competitiveness among firms. Regarding the second item, respondents were asked to indicate their level of agreement with the statement: "Food and Beverage firms make quick responses to customer demand." The results showed that 32.8% strongly agreed, 22.9% agreed, 15.6% were neutral, 27.6% disagreed, and 1.0% strongly disagreed. On average, respondents agreed, as indicated by a mean of 3.5885 with a standard deviation of 0.53325. This clearly indicates that innovation contributes to the competitiveness of food and beverage firms by enabling faster responses to customer demands.

An increase in investment returns is a measure of a firm's competitiveness. The study aimed to determine the level of agreement among respondents on whether Food and Beverage firms have consistently reported increased enterprise return on investment. The results showed that 44.8% and 42.2% of respondents agreed and strongly agreed, respectively, that Food and Beverage firms have reported continuous increases in enterprise return on investment. Additionally, 7.8% were neutral on this issue, while 2.6% disagreed, and another 2.6% strongly disagreed that Food and Beverage companies have consistently reported increased returns. On average, respondents agreed that Food and Beverage firms have reported continuous increases in enterprise return on investments, as indicated by a mean of 4.2135 with a standard deviation of 0.89280.

A low cost of production in a firm indicates its competitiveness in the market. The data in Table 4.25 shows that 41.7% of respondents agreed that Food and Beverage firms experienced a decrease in production costs, 39.6% strongly agreed that these firms reported a continuous increase in return on investment, 16.7% were neutral, while

2.1% strongly disagreed with the idea that Food and Beverage firms reported a continuous increase in return on investment. On average, with a mean of 4.1667 and a standard deviation of 0.85206, respondents agreed that Food and Beverage firms reported sustained improvements in return on investment. This suggests that the implemented business innovations contributed to the competitiveness of Food and Beverage firms, as reflected in the recorded decrease in production costs.

An increase in employment opportunities within the firm indicates its competitiveness among other firms. The study aimed to determine respondents' level of agreement on whether there was growth in human resources employment in the food and Beverage firms in Nairobi County. According to the results, most respondents, 54.2%, agreed, 28.6% agreed (this seems repetitive and might be an error), 14.6% were neutral, and 2.6% disagreed. Overall, respondents agreed that there is growth in the employment of human resources in Food and Beverage firms, as shown by a mean of 4.0885 and a standard deviation of 0.72896. This suggests that the deployment of entrepreneurial innovations has led to increased competitiveness among Food and Beverage firms in Nairobi City County.

Offering unique food and beverage products indicates competitiveness among Food and Beverage firms. The study aimed to determine the level of agreement among respondents on whether Food and Beverage firms were providing unique offerings in the Nairobi City County market. The findings showed that most respondents, 53.6%, agreed, 32.3% strongly agreed, and 14.1% were neutral. Most respondents, with a mean of 4.1823 and a standard deviation of .65770, agreed that Food and Beverage firms were offering unique food and beverages in the Nairobi City County market.

A firm's offering of quality products is an indicator of its competitiveness. The study measured respondents' agreement with the statement that Food and Beverage firms offer quality food and beverages in the market within Nairobi City County. The findings showed that 47.4% of respondents agreed, 34.9% strongly agreed, 12.5% were undecided, 2.6% disagreed, and 2.6% strongly disagreed. The overall results, with a mean of 4.0937 and a standard deviation of 0.89884, confirmed that respondents

believed these firms were competitive based on their quality offerings in Nairobi's market.

The acquisition of learning and critical success factors as capabilities for gaining a competitive edge indicates firms' competitiveness in the market. The respondents were asked to indicate the extent to which they agreed that Food and Beverage firms possess learning and strategic critical success capabilities that enable them to gain a competitive edge. According to the results, most respondents, 53.1%, agreed, 41.1% strongly agreed, while only 5.7% remained neutral. On average, respondents agreed that Food and Beverage firms possess learning and strategic critical success capabilities to gain a competitive edge, as indicated by a mean of 4.3542 and a standard deviation of 0.58746. Overall, respondents agreed, as reflected by a mean of 4.12655 and a standard deviation of .7429. The findings demonstrate that Food and Beverage firms have achieved a competitive position. This is supported by Kiraka et al. (2013), who stated that SMEs need to improve their efficiency, diversify their operations, and produce high-quality products and services while responding promptly to market changes. Innovation is widely recognized as a key factor in firm competitiveness, survival, and growth.

The descriptive statistics results for the dependent variable, competitiveness measured in terms of Returns on Assets (ROA), are presented below in Table 4.26.

Table 4.26: Descriptive Statistics for Competitiveness in Profitability Indicators

Variable	Obs(n)	Mean	Std.Dev.	Min	Max
Return on Asset	768	0.0210	0.1389	0.0958	0.923

Table 4.26 above shows Return on Assets (ROA). Return on assets (ROA) had 768 observations with a mean of 0.0210. This indicates that, on average, Food and Beverage Manufacturing Firms in Nairobi City County recorded a return on assets of Ksh 0.0210 billion, with an asset base ranging from a minimum of 0.0958 to a maximum of 0.923. The findings are supported by Kadocsa (2016), who states that returns on assets and returns on investment measure competitiveness in the SMEs industry.

4.7 Inferential Analysis

This section presents inferential analysis to evaluate the relationships between different types of entrepreneurial innovation and the competitiveness of food and beverage companies. The goal is to predict and infer about the population using sample data, specifically focusing on how various innovations—such as product development, process innovation, marketing innovation, and organizational innovation—affect these companies' competitiveness. Inferential analysis is essential for moving beyond mere description to test hypotheses about how innovation influences firms' competitiveness. Regression models, ANOVA tests, and coefficient analyses are employed to assess the strength and significance of these relationships, while also considering the moderating role of firm size.

4.7.1 Influence of Entrepreneurial Innovation on Competitiveness

Section 4.9.1 explores how entrepreneurial innovation affects the competitiveness of food and beverage companies. This analysis examines how different types of innovation—specifically organizational, marketing, product development, and processing innovations—impact a company's ability to remain competitive in a changing market. By investigating the links between these innovative strategies and competitiveness, the section aims to provide insights into the key factors that drive success in the industry.

Table 4.27: Composite R^2 Value for the Influence of Entrepreneurial Innovation on Competitiveness

R	R Square	Adjusted R-Square	Std. Error of the Estimate
.944a	.892	.890	.075

a Predictors: (Constant), Organizational Innovations, Marketing Innovations, Product development Innovation, Processing Innovations

Table 4.27 shows the model summary for how entrepreneurial innovation affects competitiveness. The R value of .944 indicates a very strong positive link between entrepreneurial innovation (including organizational, marketing, product development, and processing innovations) and the competitiveness of food and

beverage companies. The R-squared value of 0.892 indicates that about 89.2% of the variation in competitiveness is explained by the predictor variables. The adjusted R-square of .890 confirms that the model is highly reliable. The standard error of .075 measures the accuracy of the model's predictions, with lower values indicating better predictive performance.

Table 4.28: ANOVA Results for the Influence of Entrepreneurial Innovation on Competitiveness

	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.657	4	2.164	386.137	.000b
Residual	1.048	187	.006		
Total	9.705	191			

a Dependent Variable: Competitiveness of Food and Beverage Firms
b Predictors: (Constant), Organizational Innovations, Marketing Innovations, Product development Innovation, Processing Innovations

Table 4.28 shows the ANOVA results for the regression analysis. The F-statistic of 386.137 and a p-value of 0.000 clearly indicate that the model is statistically significant and that entrepreneurial innovation, as a whole, substantially influences the competitiveness of food and beverage companies. A p-value less than 0.05 indicates that the null hypothesis, which states there is no relationship between the predictors and competitiveness, can be rejected. Therefore, the model is valid and provides meaningful insights into the relationship being examined. The high F-value of the model demonstrates that the predictors together explain a large portion of the variance in competitiveness.

Table 4.29: Coefficients of the Model for the Influence of Entrepreneurial Innovation on Competitiveness

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.015	.113		-0.132	.895
Product development Innovation	.163	.020	.236	8.081	.000
Processing Innovations	.155	.033	.182	4.719	.000
Marketing Innovations	.436	.030	.511	14.614	.000
Organizational Innovations	.246	.021	.367	11.663	.000

a Dependent Variable: Competitiveness of Food and Beverage Firms

Table 4.29 presents the model's coefficients. Both unstandardized and standardized coefficients give insights into the relative significance of each innovation type in affecting competitiveness. Marketing innovations (B = .436, β = .511) have the most significant impact on competitiveness, followed by product development innovation (B = .163, β = .236), processing innovations (B = .155, β = .182), and organizational innovations (B = .246, β = .367). All variables are statistically significant with p-values below .05. These findings indicate that marketing innovation is the most influential factor in boosting competitiveness in the food and beverage industry, with organizational and product development innovations also playing key roles. The coefficient values suggest that as each type of innovation increases, competitiveness also tends to rise.

Multivariate Model Equation:

$$Y = -0.015 + 0.163X_1 + 0.155X_2 + 0.436X_3 + 0.246X_4 + \epsilon$$

Where:

Y = Competitiveness of Food and Beverage Firms

X1 = Product Development Innovation

X2 = Processing Innovations

X3 = Marketing Innovations

X4 = Organizational Innovations

ϵ = Error term

The findings from Tables 4.27, 4.28, and 4.29 emphasize the crucial role of entrepreneurial innovation in enhancing firms' competitiveness, especially in the food and beverage sector. Marketing innovations, which involve introducing new marketing strategies and techniques, have the highest standardized coefficient, indicating that firms focusing on innovative marketing methods are likely to gain a significant competitive advantage (Ogunyomi & Bruning, 2022). The emphasis on marketing highlights how firms can stand out in a crowded marketplace by better satisfying consumer needs and developing strong brand identities. This aligns with the findings of Park and Kwon (2023), who emphasize the importance of marketing innovation in improving firm competitiveness through customer engagement and targeted promotions.

Furthermore, product development and processing innovations also emerge as key drivers of competitiveness, supporting the argument that technological advancements and new product offerings help firms stay ahead in the competitive landscape (Baba & Buabeng, 2021). Product development innovations enable firms to meet evolving consumer preferences, which is vital in industries like food and beverages, where consumer tastes and demands change rapidly. Processing innovations contribute to operational efficiencies, enabling firms to enhance quality, reduce costs, and comply with regulatory standards. These findings are consistent with the work of Kumar and Gupta (2022), who argue that technological innovations in product development and processes can significantly improve a firm's market standing.

In contrast, organizational innovations, although significant, have a slightly lower impact on competitiveness than innovations in marketing and product development. Organizational innovations often involve adjustments to management structures or workflows, which can enhance internal efficiency and adaptability (Sengupta & Sharma, 2020). However, their direct influence on external competitiveness may not be as immediately apparent as that of marketing or product development innovations. Nonetheless, a well-implemented organizational structure can support the adoption of other innovations and foster an environment conducive to growth. Overall, these findings highlight the importance of food and beverage companies adopting a

comprehensive innovation strategy that encompasses all aspects of innovation to sustain competitiveness in a dynamic industry.

4.7.2 Influence of Product Development Innovation on Competitiveness

Section 4.9.2 examines how innovation in product development impacts the competitiveness of food and beverage companies. As a key component of entrepreneurial innovation, product development innovation is vital for strengthening a company's market standing, fulfilling consumer demands, and standing out in a competitive industry. This section highlights statistical results illustrating the strength of the relationship between product development innovation and firm competitiveness. The analysis aims to assess how innovation in product development can enhance a company's competitive effectiveness in the food and beverage sector. The findings from regression models, ANOVA, and coefficients help determine the extent to which product development innovation influences a company's competitive edge.

Table 4.30: R^2 Value for the Influence of Product Development Innovation on Competitiveness

R	R Square	Adjusted R-Square	Std. Error of the Estimate
.666a	.443	.440	.169

a Predictors: (Constant), Product development Innovation

Table 4.30 displays the R-squared value for the impact of product development innovation on competitiveness, which is .443. This indicates that product development innovation explains about 44.3% of the variability in competitiveness among food and beverage companies. The adjusted R-squared value of .440 indicates that, after accounting for the number of predictors, the model still explains a significant portion of the variation. The standard error of the estimate is .169, reflecting a relatively small average difference between the predicted competitiveness scores and the actual values.

Table 4.31: ANOVA Results for the Influence of Product Development Innovation on Competitiveness

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.301	1	4.301	151.217	.000b
Residual	5.404	190	.028		
Total	9.705	191			

a Dependent Variable: Competitiveness of Food and Beverage Firms
b Predictors: (Constant), Product development Innovation

Table 4.31 shows the ANOVA results, indicating that the model is statistically significant, with an F-value of 151.217 and a p-value of .000. This low p-value suggests that the regression model fits the data well and that the link between product development innovation and competitiveness is unlikely to be due to chance. The regression sum of squares (4.301) is considerably larger than the residual sum of squares (5.404), further confirming the strength of the relationship.

Table 4.32: Coefficients of the Model for the Influence of Product Development Innovation on Competitiveness

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.382	.162		14.734	.000
Product development Innovation	.458	.037	.666	12.297	.000

a Dependent Variable: Competitiveness of Food and Beverage Firms

In Table 4.32, the coefficient for product development innovation is 0.458, with a t-value of 12.297 and a p-value of 0.000. This indicates a strong, statistically significant positive relationship between product development innovation and competitiveness. The standardized beta coefficient of .666 indicates that product development innovation is a major factor influencing competitiveness among food and beverage companies, meaning that as product development innovation increases, a firm's market competitiveness also rises.

The strong positive effect of product development innovation on competitiveness is supported by broader research, which shows that such innovations often lead to

improved market position and financial results (Damanpour & Aravind, 2021). This connection can be explained by firms' ability to differentiate their products, respond to consumer preferences, and enhance their market appeal through continuous innovation. In the food and beverage industry, where consumer tastes change rapidly, companies that innovate in product development are more likely to increase their market share and stay competitive (Kapoor & Finkelstein, 2022).

The model's R-squared value of 0.443 shows a meaningful, though not dominant, influence of product development innovation on competitiveness. This indicates that while product development is important, other factors also affect a firm's competitiveness. Previous studies have emphasized that factors like operational efficiency, marketing strategies, and organizational culture also play key roles in shaping a firm's competitive position (Schneider et al., 2020). Therefore, while product development is essential, it must be supplemented with other strategic initiatives to sustain competitiveness.

This analysis highlights the importance of product development as a key factor in competitiveness, but also indicates that firms should not depend solely on innovation in product development. To stay competitive, food and beverage companies should adopt a comprehensive approach that encompasses innovations in other areas, such as marketing and operations, as these are also vital for overall competitiveness (Rhee & Kim, 2021). Additionally, companies should consider aligning their product development efforts with broader market trends and consumer demands to enhance the effectiveness of innovation on their competitive position.

4.7.3 Influence of Process Innovation on Competitiveness

Process innovation is essential for improving operational efficiency in companies, especially in industries like food and beverage, where cost-effectiveness and quick responsiveness to market demands are vital for competitiveness. It involves developing and applying new or significantly improved production or delivery methods that enhance both the efficiency and effectiveness of operations.

Table 4.33: R^2 Value for the Influence of Process Innovation on Competitiveness

R	R Square	Adjusted R-Square	Std. Error of the Estimate
.793a	.629	.627	.138

a Predictors: (Constant), Process Innovation

The results in Table 4.33 demonstrate a strong link between process innovation and competitiveness in food and beverage companies, with an R^2 value of .629. This indicates that 62.9% of the variance in competitiveness can be explained by process innovation. The adjusted R^2 of 0.627 indicates that this model fits the data well, given the number of predictors used. The standard error of .138 suggests that the model's predictions are fairly accurate.

Table 4.34: ANOVA Results for the Influence of Process Innovation on Competitiveness

	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.107	1	6.107	322.449	.000b
Residual	3.598	190	.019		
Total	9.705	191			

a Dependent Variable: Competitiveness of Food and Beverage Firms
b Predictors: (Constant), Process Innovation

The ANOVA results in Table 4.34 further confirm the importance of process innovation in improving competitiveness. The regression sum of squares (6.107) and the mean square (6.107) yield an F-statistic of 322.449, with a p-value of .000, indicating that the model is statistically significant. This indicates that process innovation significantly affects the competitiveness of food and beverage companies, with a very low chance that the results are due to random factors.

Table 4.35: Coefficients of the Model for the Influence of Process Innovation on Competitiveness

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.413	.165		8.581	.000
Process Innovation	.676	.038	.793	17.957	.000

a Dependent Variable: Competitiveness of Food and Beverage Firms

Table 4.35 presents the model's coefficients, where the constant (intercept) is 1.413 and the coefficient for process innovation is .676, with a standardized beta of .793. This demonstrates a strong positive relationship between process innovation and competitiveness. The t-value of 17.957 and the p-value of .000 further confirm that the impact of process innovation on competitiveness is statistically significant. In essence, each unit increase in process innovation leads to a 0.676-unit increase in competitiveness, highlighting the importance of this innovation in boosting competitive advantage.

The findings indicate that process innovation is vital for boosting the competitiveness of food and beverage companies. Since process innovation primarily aims to optimize production, cut costs, improve product quality, and boost efficiency, its impact on competitiveness is clear. Companies that adopt new technologies or streamline their operations are likely to experience lower production costs and faster time-to-market, giving them a competitive advantage. The high R^2 value indicates that a large share of competitiveness depends on process innovation, underscoring its essential role.

In the food and beverage industry, process innovations such as automation, improved supply chain management, and advanced manufacturing methods can enhance product consistency and reduce costs. These benefits make companies more appealing to consumers by ensuring higher quality and more reliability. Additionally, process innovations help companies adjust to changing market conditions, such as shifts in consumer preferences or supply chain issues, thereby boosting their long-term competitiveness. These findings align with previous research highlighting the

importance of process innovation in maintaining a competitive edge (Tushman & O'Reilly, 2020).

The strong statistical significance (p = .000) of the process innovation variable underscores the importance of food and beverage companies prioritizing investment in process improvements. These enhancements can include areas such as production technologies, waste-reduction techniques, and operational efficiencies. The findings support the growing body of research indicating that process innovations are essential for companies aiming to sustain or improve their competitive edge in the market. Therefore, food and beverage companies should view process innovation not just as a means to improve operations but also as a strategic move to achieve a sustainable competitive advantage in an increasingly competitive marketplace.

4.7.4 Influence of Marketing Innovation on Competitiveness

This section examines the link between marketing innovation and the competitiveness of food and beverage companies. Marketing innovation includes various strategies and tactics, such as adopting new digital tools, increasing customer engagement through social media, and using data analytics to enhance marketing decisions. These innovations allow firms to better satisfy consumer needs, strengthen brand loyalty, and stand out in a competitive market.

Table 4.36: R^2 Value for the Influence of Marketing Innovation on Competitiveness

R	R Square	Adjusted R-Square	Std. Error of the Estimate
.732a	.535	.533	.154

a Predictors: (Constant), Marketing Innovation

The results in Table 4.36 show an R-squared of 0.535 for the model explaining the influence of marketing innovation on competitiveness in food and beverage firms. This indicates that marketing innovation accounts for 53.5% of the variance in competitiveness, reflecting a moderate yet meaningful impact. The adjusted R-squared of .533 indicates a good fit of the model after accounting for the number of predictors, confirming that marketing innovation significantly influences competitiveness in this

sector. The standard error of the estimate is 0.154, suggesting that the model's predictions are reasonably accurate.

Table 4.37: ANOVA Results for the Influence of Marketing Innovation on Competitiveness

	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.196	1	5.196	218.991	.000b
Residual	4.508	190	.024		
Total	9.705	191			

a Dependent Variable: Competitiveness of Food and Beverage Firms
b Predictors: (Constant), Marketing Innovation

The ANOVA results in Table 4.37 further confirm the importance of marketing innovation as a predictor of competitiveness. The regression sum of squares is 5.196, with 1 degree of freedom for the predictor, and a residual sum of squares of 4.508, with 190 degrees of freedom. The F-statistic of 218.991 and the p-value of .000 indicate that the model is statistically significant, confirming that marketing innovation significantly impacts the competitiveness of food and beverage firms. This statistical significance suggests that the relationship between marketing innovation and competitiveness is unlikely to have occurred by chance.

Table 4.38: Coefficients of the Model for the Influence of Marketing Innovation on Competitiveness

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.621	.186		8.733	.000
Marketing Innovation	.624	.042	.732	14.798	.000

a Dependent Variable: Competitiveness of Food and Beverage Firms

Table 4.38 presents the regression coefficients, illustrating the effect of marketing innovation on competitiveness. The unstandardized coefficient for marketing innovation is .624, while the standardized beta coefficient is .732, indicating a strong positive link between marketing innovation and competitiveness. This means that a one-unit increase in marketing innovation results in a 0.732-unit increase in

competitiveness, highlighting the significance of marketing innovation in gaining a competitive advantage in the food and beverage industry. The t-statistic of 14.798 and the p-value of 0.000 further confirm that this relationship is statistically significant.

The results from the regression analysis indicate that marketing innovation has a significant and positive impact on the competitiveness of food and beverage companies. The moderate R-squared value of .535 suggests that while marketing innovation is an important factor in determining competitiveness, other elements may also contribute. This aligns with research indicating that marketing innovation, such as new promotional strategies, digital marketing, and brand differentiation, is crucial for enhancing competitiveness in fast-changing industries like food and beverages (Chong et al., 2021). Companies that innovate in their marketing strategies are better positioned to attract and retain customers, which ultimately improves their market position.

The strong positive relationship observed between marketing innovation and competitiveness aligns with the finding that firms implementing new marketing strategies, such as leveraging social media platforms, influencer marketing, or personalized customer experiences, often outperform competitors. Marketing innovation enables firms to differentiate themselves, respond quickly to market changes, and effectively reach target consumers, which is critical for success in highly competitive markets (Kotler & Keller, 2022). This can be especially advantageous in the food and beverage sector, where consumer preferences change rapidly, and firms must constantly adapt to stay ahead.

In conclusion, the findings highlight the vital role of marketing innovation in enhancing the competitiveness of food and beverage companies. The statistical significance of the relationship, along with the strong beta coefficient, indicates that investing in marketing innovation is an effective strategy for companies seeking to maintain a competitive edge. As the food and beverage market grows more competitive, firms that focus on innovation in their marketing strategies are likely to succeed by better satisfying consumer needs and building a stronger brand presence.

This emphasizes the importance of companies to include marketing innovation in their strategic goals to achieve long-term success.

4.7.5 Influence of Organization Innovation on Competitiveness

This section explores how organizational innovation affects the competitiveness of food and beverage companies. Organizational innovation involves introducing new management methods, workplace structures, or external relationships to boost operational efficiency and overall company performance. In the food and beverage industry, this type of innovation may include restructuring, adopting new business models, or improving corporate governance to promote growth and flexibility. Understanding the link between organizational innovation and competitiveness is crucial for seeing how firms can strategically position themselves to achieve a competitive edge in a fast-changing market.

Table 4.39: R^2 Value for the Influence of Organization Innovation on Competitiveness

R	R Square	Adjusted R-Square	Std. Error of the Estimate
.591a	.349	.346	.182

a Predictors: (Constant), Organization Innovation

Table 4.39 shows the R^2 value for the influence of organizational innovation on competitiveness. The R^2 value of .349 from Table 4.39 indicates that organizational innovation explains about 34.9% of the variation in competitiveness among food and beverage companies. This suggests that organizational innovation has a significant but limited impact on a firm's competitive position in the market. The moderate R^2 value indicates that while organizational changes such as restructuring, leadership innovations, or new management practices can improve competitiveness, other factors outside of organizational innovation also play a role.

Table 4.40: ANOVA Results for the Influence of Organization Innovation on Competitiveness

	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.387	1	3.387	101.847	.000b
Residual	6.318	190	.033		
Total	**9.705**	**191**			

a Dependent Variable: Competitiveness of Food and Beverage Firms
b Predictors: (Constant), Organization Innovation

Table 4.40 shows the ANOVA results for the Influence of Organization Innovation on Competitiveness. The ANOVA results in Table 4.40 reveal that the overall model is statistically significant, with an F-value of 101.847 and a significance level of .000 ($p < .05$). This indicates that organizational innovation significantly affects competitiveness and that the regression model is a good fit for predicting it. The significant result implies that changes in the organization's structure, culture, or operations are likely to substantially affect the firm's competitiveness in its industry.

Table 4.41: Coefficients of the Model for the Influence of Organization Innovation on Competitiveness

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.618	.174		15.086	.000
Product development Innovation	.395	.039	.591	10.092	.000

a Dependent Variable: Competitiveness of Food and Beverage Firms

Table 4.41: Coefficients of the Model for the Influence of Organization Innovation on Competitiveness

Table 4.41 shows that organizational innovation has a positive and significant relationship with competitiveness, with a standardized beta coefficient of .591 and a t-value of 10.092, both of which are highly significant ($p < .05$). The unstandardized coefficient of .395 indicates that a one-unit increase in organizational innovation results in a .395-unit rise in competitiveness. These findings highlight that

organizational innovation is a key factor that boosts a firm's competitive ability, having a more substantial impact than other types of innovation, such as product or process innovation.

The findings from this analysis emphasize the essential role of organizational innovation in boosting the competitiveness of food and beverage companies. The R^2 value of .349 indicates that a significant portion of these companies' competitive advantage can be linked to organizational innovation. Innovations such as enhanced management systems, leadership strategies, and a strong organizational culture can help firms optimize operations, improve employee performance, and build a competitive edge in a busy market. As companies continually adjust to internal and external market challenges, these innovations become crucial for maintaining or growing their market share.

Additionally, the ANOVA results (Table 4.40) indicate that the relationship between organizational innovation and competitiveness is strong and statistically significant. This supports the idea that organizational innovation, although just one factor among many, plays a vital role in shaping the competitive landscape of the food and beverage sector. Food and beverage companies that invest in organizational innovations can expect to improve their ability to manage market complexities, streamline decision-making, and increase overall efficiency, all of which enhance competitiveness.

The coefficients shown in Table 4.41 emphasize the significance of organizational innovation, as they demonstrate a strong positive effect on competitiveness. Firms that invest in cultivating a culture of innovation within their operations—perhaps through employee training, adopting agile management practices, or restructuring their organizations—are likely to gain increased market competitiveness. Since the standardized beta coefficient of .591 exceeds those typically observed for product or process innovations, it is clear that organizational changes can provide the most substantial return on investment in enhancing a firm’s competitive position in the food and beverage sector.

4.7.6 Moderating Effect of Firm Size

This section explores how firm size moderates the relationship between entrepreneurial innovations and the competitiveness of food and beverage companies. While earlier parts examined the direct effects of different types of innovation on competitiveness, the influence of firm size in strengthening or weakening these links remains a key area of interest.

Table 4.2: Change in R^2 Value for the Moderating Effect of Firm Size

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.925a	.856	.855	.086	.856	1128.726	1	190	.000
2	.928b	.861	.859	.085	.005	6.611	2	189	.011
3	.934c	.872	.870	.081	.011	16.611	3	188	.000

a Predictors: (Constant), Entrepreneurial Innovations
b Predictors: (Constant), Entrepreneurial Innovations, Firm Size
c Predictors: (Constant), Entrepreneurial Innovations, Firm Size, Entrepreneurial Innovations * Firm Size

Table 4.42 shows the change in R^2 for the model examining how firm size moderates the relationship between entrepreneurial innovation and competitiveness. The first model, which includes only entrepreneurial innovations as predictors, has an R^2 of .856, indicating that entrepreneurial innovations explain 85.6% of the variation in competitiveness. The second model, which adds firm size as a predictor, yields a slight increase in R^2 to .861, indicating a small improvement in the model's ability to explain variance. The third model incorporates the interaction between entrepreneurial innovations and firm size, leading to a further increase in R^2 to .872. This indicates that both firm size and its interaction with entrepreneurial innovations play a significant role in explaining the variance in competitiveness.

Table 4.43: ANOVA Results for the Moderating Effect of Firm Size

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.307	1	8.307	1128.73	.000b
	Residual	1.398	190	.007		
	Total	**9.705**	**191**			
2	Regression	8.354	2	4.177	584.334	.000c
	Residual	1.351	189	.007		
	Total	**9.705**	**191**			
3	Regression	8.463	3	2.821	427.269	.000d
	Residual	1.241	188	.007		
	Total	**9.705**	**191**			

a Dependent Variable: Competitiveness of Food and Beverage Firms
b Predictors: (Constant), Entrepreneurial Innovations
c Predictors: (Constant), Entrepreneurial Innovations, Firm Size
d Predictors: (Constant), Entrepreneurial Innovations, Firm Size, Entrepreneurial Innovations * Firm Size

Table 4.43 presents the ANOVA results for examining the moderating effect of firm size. In Model 1, the regression sum of squares is 8.307, and the F-value of 1128.73 is highly significant ($p < .001$), indicating that entrepreneurial innovations alone account for a substantial portion of the variance in competitiveness. When firm size is added to Model 2, the sum of squares increases slightly to 8.354, and the F-value remains significant ($F = 584.334$, $p < .001$), indicating that including firm size improves the model. The third model, which incorporates the interaction term, increases the sum of squares to 8.463, with an F-value of 427.269, which remains significant at the 0.001 level. This further confirms the importance of both firm size and the interaction between entrepreneurial innovations and firm size in explaining competitiveness.

Table 4.44: Coefficients of the Model for the Moderating Effect of Firm Size

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.247	.123		2.011	.046
	Entrepreneurial Innovations	.941	.028	.925	33.597	.000
2	(Constant)	.197	.122		1.607	.110
	Entrepreneurial Innovations	.935	.028	.919	33.723	.000
	Firm Size	.018	.007	.070	2.571	.011
3	(Constant)	4.874	1.153		4.225	.000
	Entrepreneurial Innovations	-1.264	.540	-1.243	-2.340	.020
	Firm Size	.017	.007	.067	2.571	.011
	Entrepreneurial Innovations * Firm Size	.258	.063	2.164	4.076	.000

a Dependent Variable: Competitiveness of Food and Beverage Firms

Table 4.44 presents the coefficients for the models that analyze the moderating effect of firm size. In Model 1, the coefficient for entrepreneurial innovations is highly significant (B = .941, p < .001), indicating a strong positive link between entrepreneurial innovations and competitiveness. In Model 2, firm size has a positive and significant effect (B = .018, p = 0.011), suggesting that larger firms tend to be more competitive. In Model 3, the coefficient for the interaction term (Entrepreneurial Innovations * Firm Size) is also significant (B = .258, p < .001), showing that the relationship between entrepreneurial innovations and competitiveness is stronger for larger firms. Additionally, the negative coefficient for entrepreneurial innovations (B = -1.264) implies that in smaller firms, the impact of entrepreneurial innovations on competitiveness may be weaker.

Moderating Model Equation (With Interaction Term)

$$Y = 4.874 - 1.264EI + 0.017FS + 0.258(EI \times FS)$$

Where:

Y = Competitiveness of Food and Beverage Firms

EI = Entrepreneurial Innovations

FS = Firm Size

EI×FS = Interaction term between Entrepreneurial Innovations and Firm Size

The results in the tables emphasize the important roles of both entrepreneurial innovation and firm size in boosting the competitiveness of food and beverage companies. As shown in Table 4.42, the model's R^2 increases when firm size and its interaction with entrepreneurial innovations are added, indicating that firm size moderates the relationship between entrepreneurial innovations and competitiveness. This supports previous research, which has found that larger firms tend to benefit more from innovations because they can allocate resources more effectively and implement innovations more quickly (Vargas & Zuluaga, 2022). Additionally, the significant interaction term in Model 3 shows that the impact of entrepreneurial innovations on competitiveness varies across firms of different sizes.

The positive effect of firm size on competitiveness, as shown by the coefficient in Model 2, indicates that larger firms have a competitive edge, probably because they can invest more in resources that support innovation and its implementation. This aligns with research suggesting that larger companies are more likely to have the financial and organizational capacity to adopt and successfully implement innovative strategies (Meyer & Soni, 2021). The moderating effect in Table 4.44 demonstrates that the link between entrepreneurial innovation and competitiveness is stronger in larger firms, reinforcing the idea that firm size enhances the ability to leverage innovation for better performance.

Despite the positive influence of firm size, the negative coefficient on entrepreneurial innovation in smaller firms, as shown in Model 3, warrants further exploration. It indicates that while innovations may benefit larger firms, smaller firms might find it difficult to turn entrepreneurial innovations into increased competitiveness. This could be due to resource limitations, a lack of managerial skills, or inadequate organizational structures in smaller firms that hinder effective change management (Karanja & Njiru, 2020). Therefore, although firm size enhances the benefits of entrepreneurial innovation, smaller firms may require additional support or customized innovation strategies to achieve comparable competitive advantages.

In conclusion, the results indicate that both entrepreneurial innovations and firm size are key factors for the competitiveness of food and beverage companies. However,

the moderating role of firm size shows that larger companies have a greater advantage in adopting and benefiting from entrepreneurial innovations. Policymakers and business leaders should take these factors into account when developing strategies for innovation adoption, especially for smaller firms that may need additional resources or support to leverage innovation to strengthen their competitiveness fully.

4.8 Test of Hypotheses

The study aimed to test four hypotheses. Table 4.45 presents the results of the hypotheses, the variables tested, the outcomes, and explanations of the results.

Table 4.45: Results of Hypothesis Testing

Hypothesis	Null Hypothesis (H0)	Statistical Test	p-value	Decision	Conclusion
H01	There is no significant influence of product development innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County, Kenya.	Regression Analysis (p-value for Product Development Innovation)	.000	Reject H0	Product development innovation significantly influences competitiveness.
H02	There is no significant influence of process innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County, Kenya.	Regression Analysis (p-value for Process Innovation)	.000	Reject H0	Process innovation significantly influences competitiveness.
H03	There is no significant influence of marketing innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County, Kenya.	Regression Analysis (p-value for Marketing Innovation)	.000	Reject H0	Marketing innovation significantly influences competitiveness.
H04	There is no significant influence of organizational	Regression Analysis (p-value	.000	Reject H0	Organizational innovation

Hypothesis	Null Hypothesis (H0)	Statistical Test	p-value	Decision	Conclusion
	innovation on the competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County, Kenya.	for Organizational Innovation)			significantly influences competitiveness.
H05	There is no significant moderating role of firm size on the influence of entrepreneurial innovation and competitiveness of Food and Beverage Manufacturing Firms in Nairobi City County, Kenya.	Moderating Effect Analysis (p-value for Entrepreneurial Innovations * Firm Size)	.000	Reject H0	Firm size significantly moderates the relationship between entrepreneurial innovation and competitiveness.

The findings of this study offer valuable insights into the role of different types of innovation and the moderating effect of firm size on the competitiveness of food and beverage manufacturing companies in Nairobi City County, Kenya. The study examined how four types of innovation — product development, process innovation, marketing innovation, and organizational innovation — affected competitiveness. It also explored how firm size moderates the relationship between entrepreneurial innovation and competitiveness. The results indicate that all types of innovation significantly enhance competitiveness, with firm size playing an important moderating role in this relationship.

Product Development Innovation and Competitiveness (H01)

The first hypothesis examined the effect of product development innovation on the competitiveness of food and beverage companies in Nairobi City County. The regression results show a p-value of 0.000, which is well below the significance level of 0.05. This leads to the rejection of the null hypothesis, suggesting that product development innovation has a significant positive impact on the competitiveness of food and beverage manufacturing firms in the area.

Product development is a vital form of innovation in highly competitive industries like the food and beverage sector, where companies must continuously adapt to shifting consumer preferences, trends, and demands. By creating new products, firms can set themselves apart in the market, offer additional value to customers, and boost their market share. This aligns with existing research highlighting the significance of product innovation in gaining a competitive advantage (Aghion & Howitt, 2009). According to Oke (2020), companies that invest in product development often see improved performance and growth, as they can launch innovative products that meet changing consumer needs.

In Nairobi, the food and beverage sector is becoming more dynamic as consumers become more health-conscious and seek products that align with global trends such as plant-based foods and organic drinks. Innovative companies in product development are more likely to meet these changing demands effectively, strengthening their competitive edge.

Process Innovation and Competitiveness (H02)

The second hypothesis explored the link between process innovation and competitiveness. The results showed a p-value of .000, which is well below the .05 significance level. This suggests that process innovation significantly impacts the competitiveness of food and beverage manufacturing firms in Nairobi City County, leading to the rejection of the null hypothesis.

Process innovation involves enhancements in the methods, techniques, or systems used in production and operations. In the food and beverage industry, process innovation can lead to increased efficiency, lower costs, improved product quality, and faster time-to-market. These improvements directly boost a firm's competitive edge by enabling it to operate more effectively and deliver high-quality products at competitive prices (Tidd & Bessant, 2014). Additionally, innovations such as automation, improved supply chain management, and waste-reduction techniques can promote greater sustainability, which is becoming increasingly vital to consumers and regulatory bodies.

In Nairobi, where labor costs can be high and access to raw materials may vary, food and beverage companies that invest in process innovations are better able to streamline operations, reduce inefficiencies, and ultimately deliver more value to consumers. This aligns with many studies highlighting the important role of process innovation in enhancing competitive performance (Siguaw, Brown, & Widing, 2001). Firms that adopt innovative production processes can gain cost advantages and boost overall productivity, allowing them to respond more effectively to market challenges.

Marketing Innovation and Competitiveness (H03)

The third hypothesis examined how marketing innovation affects competitiveness. The p-value for marketing innovation was found to be .000, which is still well below .05, leading to the rejection of the null hypothesis. This indicates that marketing innovation plays an important role in driving competitiveness in the food and beverage manufacturing sector in Nairobi City County.

Marketing innovation involves creating new strategies, channels, and techniques to promote products and connect with consumers. This includes innovations in advertising, digital marketing, branding, and customer engagement. In a competitive market like Nairobi, companies that adopt marketing innovations can differentiate themselves, attract new customers, and retain loyalty among existing clients. The growth of digital technologies and social media platforms has changed how companies interact with their target audiences, enabling more personalized and interactive marketing efforts.

For food and beverage companies in Nairobi, the ability to innovate in marketing strategies is essential for staying visible and relevant in an increasingly crowded market. As consumers' purchasing behaviors change and they become more informed through digital channels, companies that lead with creative and effective marketing campaigns can gain a competitive advantage. This aligns with the findings of authors such as Kim, Song, and Kim (2006), who argue that marketing innovation is vital for maintaining long-term competitiveness in fast-moving industries.

Organizational Innovation and Competitiveness (H04)

The fourth hypothesis examined whether organizational innovation has a significant effect on competitiveness. The regression results revealed a p-value of .000 for organizational innovation, indicating a statistically significant positive relationship between the two. Therefore, the null hypothesis is rejected, and it can be concluded that organizational innovation plays a vital role in boosting competitiveness in Nairobi's food and beverage sector.

Organizational innovation involves changes in a company's structure, culture, or management practices. This may include adopting new organizational frameworks, leadership approaches, or decision-making methods. These innovations can enhance communication, teamwork, and responsiveness to market changes, helping a firm better adapt to the business environment. For food and beverage companies in Nairobi, embracing organizational innovations can improve coordination between departments, optimize resource use, and boost customer service.

Research by Damanpour (1991) indicates that organizational innovations enhance a firm's capacity to adapt to external environmental changes, which is vital for maintaining competitiveness. In Nairobi, where the food and beverage industry is expanding quickly, companies that adopt innovative organizational methods are more likely to be agile and better equipped to respond to consumer needs, market shifts, and technological progress.

Moderating Effect of Firm Size (H05)

The final hypothesis examined the moderating effect of firm size on the relationship between entrepreneurial innovation and competitiveness. The results of the moderation analysis showed that firm size significantly moderates the relationship between entrepreneurial innovation and competitiveness, with a p-value of .000. This indicates that firm size plays an important role in determining how much entrepreneurial innovation impacts competitiveness.

In larger firms, the resources and capabilities required to implement entrepreneurial innovations, such as research and development, marketing efforts, or production capacity, are more readily available. Larger firms typically have greater financial stability, access to capital, and a wider customer base, which enables them to invest more heavily in innovation. Conversely, smaller firms may encounter difficulties in sourcing the necessary resources to implement and scale entrepreneurial innovations, which can restrict their ability to compete effectively.

This finding aligns with previous research, which emphasizes that larger firms tend to benefit more from innovations because they can leverage economies of scale and invest in technology and infrastructure (Cefis & Marsili, 2006). The moderating effect of firm size indicates that food and beverage firms in Nairobi City County can improve their innovation strategies by tailoring them according to their size. While large firms can implement a broad range of innovations in product development, marketing, and organizational practices, smaller firms may need to concentrate on specific innovations that match their resource capabilities.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

The study examines the link between entrepreneurial innovations and competitiveness in food and beverage manufacturing companies in Nairobi City County. The research was guided by specific objectives and tested hypotheses.

5.2 Summary of Findings

The study aimed to evaluate the impact of entrepreneurial innovations on the competitiveness of food and beverage companies while examining the moderating role of firm size. The data were analyzed using multiple regression models, with four main types of innovation, product development, processing, marketing, and organizational innovation, as predictors of competitiveness. The regression results offered valuable insights into the relationship between these innovations and competitiveness, as well as the moderating influence of firm size. These findings highlight the crucial role innovation plays in enhancing firm competitiveness, consistent with previous research indicating that companies with robust innovation strategies tend to outperform their competitors (Tidd & Bessant, 2018). Additionally, the significant moderating effect of firm size indicates that larger companies may have more resources to invest in innovation, which can further enhance their competitiveness (Zhu et al., 2017).

In the first regression model, the overall model was highly significant, with an R^2 of .892, indicating that 89.2% of the variability in the competitiveness of food and beverage firms could be explained by the four types of innovation combined. The F-statistic of 386.137 and a significance level of .000 further reinforced the strength of the model. The unstandardized coefficients showed that marketing innovation had the strongest effect on competitiveness, with a coefficient of 0.436 ($p < .001$). This suggests that for every unit increase in marketing innovation, competitiveness increased by 0.436 units, highlighting the central role of marketing strategies in enhancing competitive advantage. Product development innovation followed with a

coefficient of 0.163, while processing innovation and organizational innovation had coefficients of .155 and .246, respectively, all statistically significant at the 0.001 level. These findings suggest that all forms of innovation contribute positively to the competitiveness of firms in the food and beverage industry. According to studies by Damanpour (2017), marketing innovation, in particular, plays a crucial role in enhancing a firm's visibility and attracting customers, thereby improving a firm's competitive position in the market. Similarly, the positive impact of product development and organizational innovation is consistent with previous research, which has shown that these innovations can help firms improve operational efficiency and customer satisfaction (Siguaw et al., 2006).

In the second regression model, which focuses only on product development innovation, the model summary showed an R^2 of .443, meaning that 44.3% of the variation in competitiveness is explained by product development alone. The ANOVA results confirmed the model's significance ($F = 151.217$, $p < .001$). The unstandardized coefficient for product development innovation was .458, indicating a strong positive relationship between product development and competitiveness. This is further supported by a high standardized coefficient (Beta = .666), suggesting that product development innovation significantly impacts competitiveness compared to other variables in the model. These findings support research by Kim and Mauborgne (2014), who state that product innovation is a key driver of firm competitiveness by enabling firms to offer differentiated products that meet evolving consumer needs. Additionally, the high Beta coefficient emphasizes that product development innovation plays a vital role in strengthening a firm's market position, as noted in research within the food and beverage industry (Schilling, 2019).

The third model, which treated processing innovations as the only predictor, also produced significant results. The model had an R^2 of .629, indicating that processing innovations explained 62.9% of the variance in competitiveness. The F-statistic of 322.449 ($p < .001$) demonstrated that the model was statistically strong. The coefficient for processing innovation was .676, meaning that improvements in processing were linked to a .676 increase in competitiveness for each unit change in processing innovation. The standardized coefficient of .793 further highlighted the

strong impact of processing innovation on competitiveness. This supports the work of Tushman and O'Reilly (1996), who suggest that processing innovations are essential for enhancing operational efficiency and cutting costs, which can directly boost a firm's competitive advantage. By streamlining operations, processing innovations enable firms to produce goods at a lower cost, increasing profitability and market share (Porter, 1985).

Similarly, the fourth regression model, which focused only on marketing innovations, yielded an R^2 of .535, showing that marketing innovations account for 53.5% of the variation in competitiveness. The coefficient for marketing innovation was .624 ($p < .001$), and the standardized coefficient was .732, indicating a strong positive influence on competitiveness. These findings highlight the importance of marketing strategies, including digital marketing and customer engagement, in maintaining a competitive advantage in the food and beverage industry. Research by Kotler and Keller (2016) supports the idea that marketing innovations help firms differentiate themselves from competitors, which is essential for staying competitive in a crowded market. The significant impact of marketing innovation is especially relevant in the food and beverage sector, where branding and customer loyalty are key to long-term success (Ailawadi et al., 2014).

When organizational innovation was the only predictor in the fifth regression model, the results showed an R^2 of .349, meaning organizational innovations explained 34.9% of the variance in competitiveness. The coefficient for organizational innovation was .395 ($p < .001$), and the standardized coefficient was .591, indicating a significant and positive relationship between organizational innovations and competitiveness. These findings align with studies by Damanpour (2017), who argues that organizational innovation, which includes changes in organizational structure and culture, can improve a firm's agility and responsiveness to market changes. Organizational innovations also help firms enhance internal processes and employee satisfaction, which can lead to higher productivity and a more competitive workforce (Hitt et al., 2001).

The subsequent models examined the combined effects of entrepreneurial innovations and firm size. The first model, which included only entrepreneurial innovations, showed an R^2 of .856, indicating that entrepreneurial innovations account for 85.6% of the variance in competitiveness. The ANOVA results confirmed this model's significance ($F = 1128.73$, $p < .001$). The unstandardized coefficient for entrepreneurial innovations was .941 ($p < .001$), and the standardized coefficient was .925, demonstrating the strong influence of entrepreneurial innovations on competitiveness. These results align with Schumpeter (1934), who highlighted the importance of entrepreneurship and innovation in driving economic growth and firm competitiveness. The positive relationship found between entrepreneurial innovations and competitiveness suggests that firms more proactive in exploring new opportunities, taking risks, and developing innovative products or services are more likely to outperform their competitors (Zahra & Dess, 2001).

Including firm size in the second model slightly increased the R^2 to .861. Firm size had a smaller but meaningful impact on competitiveness, with a coefficient of .018 ($p = .011$) and a standardized coefficient of .070, showing that larger firms had a slight edge in adopting innovations. This aligns with the resource-based view, which suggests that bigger firms possess more resources, allowing them to invest in innovation and expand their operations more effectively (Barney, 1991). However, as researchers like Amit and Schoemaker (1993) point out, the link between firm size and innovation is not always clear, and smaller firms can also gain competitive advantages through greater agility and flexibility in adopting innovations.

In the third model, which examined the interaction between entrepreneurial innovations and firm size, the R^2 rose to .872, indicating that the interaction term explained 87.2% of the variance in competitiveness. The interaction term (entrepreneurial innovations * firm size) had a significant coefficient of .258 ($p < 0.001$), and the standardized coefficient of 2.164 showed a strong moderating effect of firm size. This implies that the positive impact of entrepreneurial innovations on competitiveness is stronger in larger firms. The unstandardized coefficient for entrepreneurial innovations was -1.264 ($p = .020$), indicating a slight negative relationship, which may suggest diminishing returns to innovation as firm size grows.

This aligns with the work of Miller and Friesen (1982), who found that while larger firms benefit from economies of scale, their ability to adapt to innovations can be hindered by bureaucratic processes and greater resistance to change. The moderating role of firm size also underscores the importance of customizing innovation strategies to the specific needs and capabilities of firms based on their size, ensuring that both small and large firms remain competitive in the marketplace.

Overall, these findings highlight the importance of both entrepreneurial innovations and firm size in shaping the competitiveness of food and beverage companies. The strong positive link between different types of innovation (product development, processing, marketing, and organizational innovations) and competitiveness emphasizes the need for firms to pursue a comprehensive innovation strategy. Additionally, the moderating role of firm size suggests that larger firms may gain more from innovations, implying that policies and strategies to promote innovation should also consider firm size to ensure widespread competitiveness in the industry. This aligns with Porter (1990), who states that firms must continuously innovate to maintain a competitive advantage, and with the resource-based view of innovation (Barney, 1991), which describes both innovation and firm size as key factors influencing firm performance.

5.3 Conclusions

The study examined how entrepreneurial innovations enhance the competitiveness of food and beverage companies, highlighting the moderating effect of firm size. The results show that innovation has a significant impact on a company's competitive position, with various forms, including product development, marketing strategies, process improvements, and organizational changes, being key drivers of competitiveness. The role of firm size as a moderator suggests that larger firms are better equipped to utilize these innovations effectively, whereas smaller firms may encounter more difficulties due to limited resources.

One of the main conclusions from the study is the strong link between entrepreneurial innovations and competitiveness. It shows that companies that invest in and adopt innovations across various areas tend to have a better market position. Notably,

marketing innovations stood out as a particularly influential factor, indicating that companies which emphasize differentiation through marketing strategies can attract and keep customers more successfully, boosting their competitive edge. Innovations in product development also played an important role, helping companies meet changing consumer preferences and needs, which is critical in an industry where consumer demands can shift quickly.

Processing innovations also proved to be crucial, as they help improve operational efficiency, reduce costs, and streamline production processes. For firms operating in a competitive market like food and beverage, the ability to produce goods efficiently while maintaining product quality is essential to staying ahead of the competition. Organizational innovations, which encompass changes in internal structures, management practices, and company culture, also contribute to competitiveness by enhancing the overall agility and adaptability of firms. These changes enable firms to respond more effectively to external challenges, such as shifts in market conditions or consumer trends, as well as internal challenges, including optimizing employee productivity and fostering a more collaborative work environment.

Another key conclusion of the study is the different impact of innovation on firms of various sizes. Larger firms, thanks to their greater resources and ability to invest in new technologies and strategies, tend to benefit more from entrepreneurial innovations. These firms are better equipped to cover the costs of implementing new innovations and can more easily scale their operations to accommodate the changes they make. Conversely, smaller firms often encounter more difficulties in adopting innovative practices due to limited financial and human resources. Despite these obstacles, small firms can still gain a competitive advantage by focusing on specific innovations that match their capabilities and market niche.

The moderating effect of firm size emphasizes the importance of recognizing the unique challenges and opportunities faced by firms of different sizes when developing innovation strategies. For smaller firms, it might be more advantageous to focus on innovations that are low-cost, high-impact, and simple to implement. For example, concentrating on incremental innovations in marketing or processing can help smaller

firms gain a competitive edge without requiring substantial capital investment. Conversely, larger firms may have the capacity to pursue more radical innovations, such as developing new products or making large-scale organizational changes, which can significantly enhance their competitiveness.

Furthermore, the study indicates that a holistic approach to innovation, involving multiple types rather than focusing on just one, is crucial for maintaining long-term competitiveness. Companies that concentrate only on one aspect of innovation, such as product development or marketing, might find their competitive advantage is temporary. Instead, integrating innovation across product development, marketing, processing, and organizational practices helps companies build a more comprehensive and resilient strategy to stay competitive. Additionally, the connection between different types of innovation means that improvements in one area can often support and boost innovations in others. For example, advances in processing innovation can enhance the efficiency of product development, while improvements in organizational innovation can foster a culture that promotes further innovation throughout the company.

Additionally, the findings highlight the importance for companies to continuously adapt and evolve their strategies in response to changing market conditions. The food and beverage industry experiences rapid shifts in consumer preferences, economic factors, and technological progress. Companies that remain inflexible and fail to innovate may quickly lose their competitive edge. Conversely, companies that stay agile, embrace new ideas and technologies, and keep refining their products and services are more likely to stay relevant in the market and achieve long-term success.

The study also emphasizes the importance of creating an innovation-friendly environment within the organization. Organizational culture is crucial in encouraging innovation because it affects employees' willingness to share ideas and engage in the innovation process. A culture that values creativity, experimentation, and continuous learning can help companies develop new ideas and promote innovation throughout the business. Leadership also plays a vital role in shaping this culture by setting clear

strategic objectives, offering resources for innovation, and fostering an environment that supports risk-taking and problem-solving.

Additionally, the findings highlight that a firm's ability to effectively execute its innovation strategies is just as crucial as the innovation itself. It's not enough to merely come up with new ideas; companies need the systems, processes, and capabilities to implement those ideas and make them real. This requires strong leadership, clear communication, and efficient resource management to ensure innovations are successfully incorporated into the company's operations and lead to real improvements in competitiveness.

Finally, the study recommends that policy-makers and industry leaders acknowledge the importance of innovation in boosting the competitiveness of food and beverage companies, especially in supporting smaller firms that may lack the resources to innovate independently. By offering access to funding, training, and resources, along with creating a supportive regulatory environment, more firms, regardless of size, can be encouraged to adopt innovation and improve their competitiveness. Collaboration between the public and private sectors in developing an innovation ecosystem can create more vibrant and competitive industries, ultimately benefiting both companies and consumers.

5.4 Recommendations

5.4.1 Managerial Practices

Based on the study's findings, it is crucial for managers in food and beverage companies to develop comprehensive strategies that promote innovation, which is vital for enhancing competitiveness. These strategies should be applied across different areas such as product development, marketing, production processes, and organizational structures. Managers should view innovation not as a one-time event, but as a continuous process integrated into the daily operations of the firm. A key recommendation is to foster a culture that encourages creativity and supports innovative thinking at every level of the organization.

Building a culture of innovation starts with leadership. Managers need to show a dedication to innovation through their decisions, actions, and communication. Employees should be empowered to share ideas, participate in brainstorming sessions, and experiment with new concepts without the fear of failure. Fostering open communication and providing regular feedback can help discover valuable ideas from all parts of the organization. Managers should also prioritize ongoing training to improve employees' skills, making sure they are prepared to take part in the innovation process.

Another important recommendation is for managers to allocate enough resources to support innovation. Funds should be dedicated to research and development (R&D), as innovation often requires initial investments to generate long-term benefits. Additionally, hiring and keeping specialized talent focused on innovation, technology, and product development can greatly improve the firm's ability to stay competitive. Managers should focus on providing the essential tools, equipment, and technologies that foster innovation, especially for smaller firms that may face resource limitations.

Adopting a customer-focused approach to innovation is also essential. Understanding and addressing customer needs and preferences should guide the development of new products, services, and processes. Managers can use customer feedback gathered through surveys, focus groups, and social media interactions to shape their innovation strategies. Aligning innovations with market trends and consumer demands helps ensure the relevance and success of new initiatives. Additionally, managers should keep a close eye on the competitive landscape, staying adaptable to new trends and technologies that could impact the firm’s market position.

Effective implementation is essential for the success of innovation efforts. While generating innovative ideas is crucial, their successful execution ultimately determines their value to the company. Managers should ensure that innovation strategies are well integrated into operational practices. This includes setting clear objectives, timelines, and roles within the team responsible for the innovation initiatives. Establishing key performance indicators (KPIs) will help track progress and measure success.

Additionally, managers should stay flexible and be prepared to adjust strategies as they assess the impact of their innovation efforts.

Partnering with external entities like suppliers, universities, or even competitors can boost innovation efforts. Managers should actively pursue collaborations that facilitate knowledge sharing, access to new technologies, or co-creation of new products. These partnerships can bring in expertise and resources that the company might not have internally. An open innovation approach, where ideas are exchanged across organizational boundaries, helps generate new perspectives and innovative solutions.

Agility and flexibility in the innovation process are also essential. The rapidly changing food and beverage industry requires companies to respond quickly to shifts in consumer preferences, technological progress, and competitive pressures. By adopting agile project management practices, companies can quickly adapt to market changes and stay ahead of their rivals. Managers should promote a mindset of ongoing adaptation, ensuring the organization remains resilient and responsive to change.

Finally, leadership commitment to innovation cannot be overstated. Managers should lead by example, inspiring their teams to embrace innovation and take calculated risks. Recognizing and rewarding innovative efforts will motivate employees to stay engaged in the innovation process. A clear, shared vision for the organization’s future, where innovation is a key element, will help align everyone's efforts toward common goals. Effective leadership should also promote learning from both successes and failures, fostering an environment where innovation can flourish.

Continuous monitoring and evaluation of innovation strategies are crucial for maintaining long-term competitiveness. Managers should regularly review the performance of innovation initiatives using KPIs that track impacts on product development, customer satisfaction, and market share. This ongoing review will offer insights into which strategies are effective and which may require adjustments, enabling firms to remain agile and competitive in an ever-changing marketplace.

5.4.2 Policy Recommendations

The study's findings also offer valuable insights for policymakers, especially in creating an environment that promotes innovation in the food and beverage industry. Policymakers should prioritize supporting small and medium-sized enterprises (SMEs) through financial incentives and access to resources that foster innovation. Since many SMEs face resource limitations, governments should implement policies providing financial support, such as tax incentives, grants, or low-interest loans, specifically designed to encourage R&D and innovation within these companies. Furthermore, facilitating access to innovation hubs, incubators, and technological resources will help smaller firms build their innovation capabilities and compete more effectively with larger players.

Governments should also aim to promote R&D investments in the food and beverage industry. Policies that offer tax incentives or subsidies to companies that dedicate a significant part of their revenue to R&D can motivate firms to pursue innovation. Additionally, supporting public-private partnerships can facilitate resource and knowledge sharing, speeding up the development of new products and technologies. Collaborative R&D projects between companies and academic institutions can foster innovation by bringing in new ideas and insights to the industry.

Finally, building strong innovation ecosystems should be a top priority. Policymakers need to invest in infrastructure to support innovation, such as research institutions, technology parks, and collaborative spaces. This involves encouraging collaboration among the public sector, private industry, and academia to create a network of resources that helps firms succeed. By promoting knowledge sharing and providing access to the latest technologies, governments can boost the overall competitiveness of the food and beverage sector.

5.4.3 Theoretical Contribution

This study makes a significant contribution to the theoretical understanding of innovation and competitiveness in the food and beverage industry. The research combines several established theories of innovation and entrepreneurship, such as

Schumpeterian Theory of Innovation and Entrepreneurship, the Theory of the Innovative Firm, Resource-Based View (RBV), Dynamic Capabilities Theory, and Knowledge-Based Theory of the Firm, to create a comprehensive framework for understanding how innovation affects firm competitiveness.

Schumpeter's theory emphasizes that innovation is the primary driver of economic growth and a key determinant of firms' competitive advantage. This research supports Schumpeter's view by demonstrating that companies in the food and beverage sector that pursue innovation, whether through new product creation, marketing tactics, or improved operational efficiency, are in a stronger position to sustain or grow their market share. The idea of "creative destruction" is especially relevant, as companies that fail to innovate risk losing their competitive edge to more flexible competitors.

The Theory of the Innovative Firm builds on Schumpeter's theory by emphasizing the firm's ability to innovate as a key factor for success in competitive markets. The study points out that firms need to develop innovation capabilities and integrate them into their organizational culture to thrive in dynamic environments. It also highlights the importance of incorporating innovation into overall firm strategy, viewing it not just as a result of creativity but as a systemic process that affects all areas of operations.

The Resource-Based View (RBV) emphasizes that firms can gain a competitive advantage by effectively managing valuable resources. The study shows that access to resources, such as skilled human capital, financial investments in R&D, and technological tools, allows firms to pursue innovative initiatives successfully. For smaller firms facing resource limitations, forming strategic partnerships and utilizing external resources are essential for overcoming these challenges.

Dynamic Capabilities Theory emphasizes the importance for firms to have the ability to adapt to changing environments. This study supports the theory by demonstrating that firms in the food and beverage industry need to be flexible and quick to respond to shifts in consumer preferences, technological progress, and market conditions. The results indicate that firms that build dynamic capabilities, such as reconfiguring resources and modifying strategies, are better equipped to maintain innovation and stay competitive.

The Knowledge-Based Theory of the Firm emphasizes the importance of knowledge management for maintaining a competitive edge. This study enhances the theory by showing how organizations that promote a culture of knowledge sharing can better utilize both internal and external knowledge sources to boost innovation. By incorporating insights from customers, suppliers, and academic partners, firms can remain leaders in innovation and develop products that align with market needs.

5.5 Recommendation for Further Study

The study focused on identifying the moderating role of firm size in the relationship between entrepreneurial innovation and the competitiveness of Food and Beverage manufacturing firms in Nairobi City County. Future research should explore other manufacturing sectors, such as agricultural chemical manufacturing, fast-moving consumer goods, and construction, to provide a broader perspective on the relationship among entrepreneurial innovations, firm size, and competitiveness across different manufacturing industries in Kenya.

Furthermore, additional research should be conducted using appropriate intervening and moderating variables to gain insight into their combined effect on the relationship between entrepreneurial innovations and the competitiveness of manufacturing firms in Kenya.

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APPENDICES

Appendix I: Introductory Letter for the Questionnaire

ROSALINEWANJIKU CHEGE
JOMO KENYATTA UNIVERSITY OF AGRICULTURE & TECHNOLOGY
SCHOOL OF BUSINESS AND ENTREPRENEURSHIP
P.O BOX 62000-00200
NAIROBI

Dear Respondent,

RE: QUESTIONNAIRE FOR FOOD AND BEVERAGE MANUFACTURING FIRMS IN NAIROBI CITY COUNTY

I am a PhD student at Jomo Kenyatta University of Agriculture & Technology in the School of Business and Entrepreneurship, conducting research on "Entrepreneurial innovation and competitiveness of food and beverage manufacturing firms in Nairobi City County." The outcome of this study aims to provide information that will be useful in guiding the manufacturing sector on the use of innovation strategies for competitiveness and for policy development to enhance innovation in the sector and improve its competitiveness.

Since your organization is part of this sub-sector, you have been identified as a potential participant in the study. Therefore, please take a few minutes to answer the questions in the questionnaire as honestly as possible.

I want to assure you that the information given will be kept completely confidential and used only for this study.

Thank you for your cooperation

Rosaline Wanjiku Chege

0720886052

Appendix II: Questionnaire

Please read each question carefully and make sure to answer all of them. For each question, select the number or box that best reflects your views or write your responses in the spaces provided. Answer all questions below as openly and honestly as possible.

1. Indicate by ticking the sub-sector to which your enterprise belongs …… (service/manufacturing SMEs)
2. Indicate the employees in the organization

   i. 1-25 [ ]
   ii. 26-50 [ ]
   iii. 51-75 [ ]
   iv. 76-100 [ ]
   v. Above 100 [ ]

3. How many years has your organization engaged in business?

   i. 1-5 years [ ]
   ii. 6-10 [ ]
   iii. 11-15 [ ]
   iv. 16-20[ ]
   v. Above 20 years

4. Indicate the type of Business Ownership for your enterprise

   i. Sole proprietorship [ ]
   ii. Partnership [ ]
   iii. Limited Company [ ]
   iv. Other (Indicate) [ ]

SECTION B: PART I: ENTREPRENEURIAL INNOVATION

5. Kindly indicate the extent to which the following statements relate to your company. Use a scale of 1-5 where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, and 5 = Strongly Agree.

Statement		1	2	3	4	5
i.	The company's competency base was enlarged					
ii.	The average development costs of new products/ services/ processes have reduced					
iii.	The time to market of new products/processes was reduced					
iv.	The level of innovativeness of new products/processes was Improved					
v.	Sales volume and market acceptance of new products were Improved					
vi.	The company improves the level of safeguarding the quality of products					
vii.	The company develops a new marketing approach					
viii.	Firm develops quality products for the market					
ix.	Increase in the improvement of existing products					

a) Indicate other innovations that your organization practices

PART II: Product Innovation Deployment

6. Please indicate the extent to which the following product innovation deployment relates to your company. Use a scale of 1-5 where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, and 5 = Strongly Agree.

Statement on New Product Development Innovation		1	2	3	4	5
i.	There are new products processed due to use of technology					
ii.	There is increase in new number of value-added products					
iii.	There is an increasing number of newly designed products					
iv.	There is increase in ingredients used in producing new products					
v.	There is an increase in new product lines in our company					
vi.	The new products have new technical features					
vii.	The new product is designed with the expectation of customers					
viii.	New products are differentiated by price					
ix.	New products have a different taste					
x.	There is an improved quality of existing products					

7. In your own opinion, indicate how product innovation has been deployed in your enterprise.....
8. Please suggest other ways of improving product innovation in order to achieve competitiveness in your company.

PART III: Process Innovation

9. Please indicate to which of the following process innovations your company relates? Use a scale of 1-5 where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, and 5 = Strongly Agree.

Process Innovation		1	2	3	4	5
i.	Determining non-value adding activities to improve efficiency in production processes					
ii.	Reduction of variable cost components in production and processes, techniques, machinery, and software					
iii.	Increasing output quality in business processes					
iv.	The company experiences decreasing variable costs and/or increasing delivery speed in delivery-related logistics processes.					
v.	The elimination of non-value adding activities in delivery-related processes.					
vi.	New methods of processing influence profitability					
vii.	Improved methodology increases sales volume					
viii.	New, improved processing methods help to meet customer demand, leading to improved sales					
ix.	Use of technology leads to improved quality and increased market share					
x.	Improved maintenance systems /operations for processes reduces processing time/increases sales volume					
xi.	New methods of processing influence profitability					
xii.	Decrease in switching costs of the company's products					
xiii.	Development of Technologically imitative products					
xiv.	Increase in creativity in design and producing products					
xv.	The company has a competent workforce					
xvi.	The addition of value-adding activities in production					

10. In your own opinion, indicate how new process innovation has been deployed in your enterprise.....
11. Suggest other ways of improving process innovation that can improve competitiveness in your firm.

PART VII: Marketing Innovation Deployment

12. Please indicate the extent to which the following marketing innovation deployments relate to your enterprise? Use a scale of 1-5 where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, and 5 = Strongly Agree.

Marketing Innovation statement		1	2	3	4	5
i.	There are new ways of designing current products through changes such as in appearance, packaging, shape, and volume without changing their basic technical and functional features.					
ii.	There is a renewed product appearance to appeal to the market.					
iii.	Renewing the distribution channels without changing the logistics processes related to the delivery of the product.					
iv.	The enterprise renews product promotion techniques of the current and/or new products.					
v.	The enterprise product pricing techniques is renewed employed for current and/or new products.					
vi.	There is a new approach to customer service					
vii.	Significant changes in the existing promotion offers					
viii.	Our enterprise has new strategies for product placement or sales channels, such as direct sales					
ix.	Introducing new products in the marketplace enhances the visibility of the new product towards customers					
x.	The business prefers a new market strategy					
xi.	The business provides products designed for a specific market segment					
xii.	There are new brands of products and services from our enterprise					

13. In your own opinion, indicate how new marketing innovation has been deployed in your enterprise.....
14. Please suggest other ways of improving marketing in order to have a larger customer base.

PART VIII: Organizational Innovation

15. Please indicate the extent to which the following organization innovation deployment relates to your enterprise? Use a scale of 1-5 where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, and 5 = Strongly Agree.

Organization Innovation		1	2	3	4	5
i.	Renewing the routines, procedures, and processes employed to execute firm activities in an innovative manner					
ii.	Renewing the enterprise technological operations to improve the quality of products and services					
iii.	There is a new management competency for effective and efficient operations					
iv.	Renewing the human resources management to foster production in our firm					
v.	The firm has renewed in-firm information sharing practice.					
vi.	The organizational structure has been renewed to facilitate teamwork.					
vii.	The enterprise renews the organizational structure to facilitate coordination between different functions, such as marketing and horticultural production					
viii.	Renewing the organizational structure to facilitate the project type Organization.					
ix.	There are new organizational structures to facilitate strategic partnerships and long-term business collaborations					

16. In your own opinion, indicate how new organizational innovation has been deployed in your enterprise.....
17. Which other organizational strategies can you deploy to improve your firm's competitiveness further?

PART IX: Firm Size

18. . Indicate the number of required items as related to your company for the last 5 years

Category	**2018**	**2019**	**2020**	**2021**	**2022**
Total SALES					
Customer Base					
Total Assets					
Number Of Permanent Employees					

Suggest ways in which firm size has affected the competitiveness of your firm, if any.

P**ART IX: Competitiveness of Food and Beverage Manufacturing Firms**

19. Indicate the extent to which the following competitiveness measures have been achieved in your enterprise. Use a scale of 1-5 where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, and 5 = Strongly Agree.

Statement		**1**	**2**	**3**	**4**	**5**
i.	Our company has increased sales growth in real terms					
ii.	The company makes a quick response to customers' demands					
iii.	Our firm has reported continuous increased enterprise return on investment					
iv.	There is an increase in low-cost production in the firm					
v.	There is growth in the employment of human resources					
vi.	The firm offers unique food and beverages in the market					
vii.	The firm offers quality food and beverages in the market					
viii.	There is new firm capabilities to gain a competitive edge in the market					

In addition to innovation, what are other ways to improve competitiveness in manufacturing firms?

PART X: Profitability

20. Indicate your enterprise's net profit for the last 5 years (2018-2022)

Year	<5,000,000	500,001-10,000,000	10,000,001-15,000,000	15,000,001-20,000,000	Over 20,000,000
2018					
2019					
2020					
2021					
2022					

21. Please indicate your enterprise's sales in Kshs in the last 5 years

Year	<10,000,000	10,000,001-20,000,000	20,000,001-30,000,000	30,000,001-40,000,000	Over 40,000,000
2018					
2019					
2020					
2021					
2022					

Appendix III: List of Food and Beverage Manufacturing Firms

Name	Email	Products
Africa Spirits Ltd	info@africaspirits.co.ke	Airline sickness bags, alcoholic beverages
Agri Pro-Pak Limited	sudhir@fruit-dale.com	Drinking Water
Agriner Agricultural Development	agriner@africaonline.co.ke	Acaricides
Al-Mahra Industries Ltd	almahraindltd@yahoo.com	Soft Drinks, Tomato Sauce,Chilli Sauce
Almasi Beverage Limited	info@almasibeverage.co.ke	Coke, Fanta Orange, Sprite, Stoney & Krest
Alpha Fine Foods Ltd	affl@alphafinefoods.com	MEAT AND FOOD PRODUCTS
Alpha Grain Millers Limited		Kifaru Maize Meal, Kifaru Homebaking
Alpine Coolers Ltd	info@alpineone.com	bottled water
Aquamist Ltd	info@aquamistwater.com	Flavoured Water & Drinks
Aviano East Africa	anoop@avianoea.com	Bottled Water
Bakers Corner Ltd	bakerscorner2011@yahoo.com	bread
Bdelo Ltd	info@bdelo.com	Maize Tortillas, Chapati, and Maize Tortilla Chips
Belfast Millers Ltd	info@belmill.com	Flour
Bio Food Products Limited	info@biofoods.co.ke	bio stirred toghurts
Bulto Foods Ltd	otienosally@yahoo.com	Fortified Foods
Candy Kenya Ltd	sales@candykenya.com	Confectioneries
Chirag Kenya Limited	naturesown@swiftkenya.com	Crisps And Crisp Bran
Confini Limited	sales@confiniltd.com	Chewy Candy
DPL Festive Ltd	admin@festivebrands.co.ke	Bread
East African Sea Food Ltd	easf.nairobi@ke.alphaafrica.com	Meat Products
East African Seed Co. Ltd	info@easeed.com	seeds
Edible Oil Products	info@nrb.mmm.co.ke	Cooking oil and fat
Elekea Limited	amisha@elekea.co.ke	Baobab Powder
Elle Kenya Limited	infor@ellekenyaltd.com	Metropolitan Gin, Metropolitan Brandy, Sir Ambirio
Erdemann Co. (K) Ltd	info@erdemann.co.ke	bread

Europack Industries Limited	europack@chemrawea.com	CO-PACKING/ Food Drinks
Excel Chemicals Ltd	suresh@excel.co.ke	Flavoured Water & Drinks
Frigoken Ltd	frigoken@frigoken.com	fresh products
Giloil Company Limited	gillgroup@nbi.ispkenya.com	Cooking oil & fat
Glacier Products Ltd	d.pam@dairyland.co.ke	Ice cream
Global Fresh Ltd	info@globalfresh.co.ke	vegetables
Gonas Best Ltd	business@gonasbestk.com	Corn Starch/ Dextrose monohyrate
Green Forest Foods Ltd	info@greenforest.co.ke	Honey Products
Jambo East Africa Ltd	admin@britania.co.ke	Confectionery Manufucturing
Kamili Packers Ltd	info@kamilipackers.com	Dry Cereals/ Green grams/ Groundnuts
Kedsta Investment Limited	kedsta2@gmail.com	Euro Gin/Brandy, Shujaa Gin/ Brandy
Kenafric Industries Limited	admin@kenafricind.com	Confectioneries
Kenchic Ltd	info@kenchic.com	Poultry Breeders, Eggs Suppliers and Feed Millers
Kenya Co-Operative Coffee Dealers Ltd (KCCD)	kccd@kenaffee.coop	Shiriki Lifesyle Coffee
Kenya Highland Seed Co. Ltd	info@khs.co.ke	Vegetable Seeds, Bean Seeds, Baby Corn Seeds ane Pea Nut Seeds
Kenya Sweets Ltd	sales@kenyasweets.com	Confectioneries
Kenya Tea Development Agency	mkagure@ktdateas.com	Association of tea growers
Kenya Wine Agencies Limited	kwal@users.africaonlline.co.ke	wine and spirits.
Kirinyaga Flour Mills		Baby Porridge, Honey
Koba Waters Ltd/ Broomhill Springs Water	info@broomhillsprings.com	Mineral water bottlers
Kuguru Food Complex Ltd	info@kuguru.com	soft drink
Kwale International Company Limited	info@kwale-group.com	Sugar
Kwality Candies & Sweets Ltd	info@candica.com	Confectioneries

Landeco Ltd	kenyua@ifm.co.ke	Onions, Garlic, Ginger& Others
Manji Food Industries Ltd	admin@dawda.net	Confectioneries/ cookies
Mashwa Breweries Ltd	mashwabrew@yahoo.com	Wines & Spirits
Melvin Marsh International	sales@melvinstea.com	
Mini Bakeries (Nbi) Ltd	info@minibake.com	Bread
Miritini Kenya	info@miritinikenya.com	Jaffa Gold Tetrapak juices, Squashes, Ready to dri
Monwalk Investment Ltd	info@monwalkinvestments.com	Vodka (Moonwalker, Milionaire) Gin (Rockstar) Bran
Nairobi Bottlers Ltd	nairobibottlers@ke.ccsabco.com	drinks
Nairobi Flour Mills Ltd	nfm@jimbi.co.ke	maize flour, wheat flour, whole wheat, whole maize
New Kenya Co-Operative Creameries Ltd	info@newkcc.co.ke	Dairy Products
Nicola Farms Ltd	info@nicola.co.ke	Holticultural products
Patco Industries Limited	patco@patcoindustriesltd.com	Confectioneries
Pearl Industries Ltd	info@frootokenya.com	Confectioneries/ Flavoured Water & Drinks
Pembe Flour Mills Ltd	pembe@pembe.co.ke	Baking Flour, Maize Meals,Animal feeds
Pernod Ricard Kenya Ltd	henry.kungu@perbold-ricard.m	Spirits, Wines, Jameson, Absolute vodka
Premier Flour Mills Ltd	admin@premierflour.co.ke	Baking Flour Atta Mark I Flour Brown Bread Flour
Premier Food Industries Limited	pfil@peptang.com	Flavoured Water & Drinks
Propack Kenya Limited	info@propack-kenya.com	Potato Crisps, Potato Chips, Potato Snacks and Pot
Purple Iris Africa	info@purpleirisafrica.com	Potato Crisps, Corn Puffs
Re-Suns Spices Limited	sach_shah77@yahoo.com.au	drinks

Sahara Venture Capital Company Ltd	dagiaimportnextport@yahoo.co.uk	Wheat Floor
Sameer Agriculture & Livestock (Kenya) LTD	info@sall.co.ke	Agricultural products, Machinery and tools
SBC Kenya Limited	sales@sbckenya.com	pepsi Drinks
Scrumptios Eats Ltd	info@scrumptioseats.co.ke	Fresh Juices
Shree Sai Industries	shree@africaonline.co.ke	Wheat Floor, Gram Flour & Spices
Simply Foods Ltd	nirav@simplyfoodslimited.com	Uji Mara Moja
Sky Foods Limited	bnjoroge@skyfoods.co.ke	Orange Juice, Mango Juice, Apple Juice, Mixed Frui
Social Bites Ltd	johannes@socialbites.co.ke	MilkPop Vanilla, MilkPop Strawberry, MilkPop Chocolate
Spice World Ltd	info@spiceworldltd.co.ke	Green grams
Stawi Foods and Fruits Limited	erick5kenneth@gmail.com	Composite Baby Porridge, Banana Flour, Family Porr
Trisquare Products Ltd	skmbugua48@gmail.com	
Tropical Heat Limited (Formerly Deepa Industries)	info@tropicalheat.co.ke	Crisps & Crisp Bran
Trufoods Ltd	info@trufoods.biz	fruit based Jams under Zesta Brand
Ultravetis East Africa Ltd	info@ultravetis.cpom	Cattle Salt
Unga Group Ltd	information@unga.com	Animal feed & health products, Flour
Usafi Services Ltd	sales@grange-park.com	food
Vert Limited	info@vertfresh.co.ke	Processing Fresh Produce, Fruit Pulp and Dried Fruits
Victoria Juice Company Limited	info@victoriajuiceco.com	Mango Juice, Guava Juice, Banana Juice
Victory Farms Limited	olgao@victoryfarmskenya.com	Tilapia Fish
W. E. Tilley (Muthaiga) Ltd	info@tilleyfish.com	Meat Products and Food
Wanji Food Industries Limited	sales@wanjis.com	cookies, Biscuits
West African Seasoning Co. Ltd	d.rimungi@ajinomoto.com.ng	Food Seasoning Products

	Zeelandia East Africa Limited	info@zeelandia-ea.com	Bakery Ingredients

Source: KAM (2022)

Appendix IV: Research Permit from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **877733**

Date of Issue: **29/April/2023**

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