

## Exploring the Application of Entrepreneurial Innovation in Selected Food Processing (Dairy) and Manufacturing Firms in Lusaka



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**ABSTRACT:** The growing population and urbanization increase food demand, but many local processors struggle with quality, affordability, and safety due to knowledge and investment gaps. The study purposed to investigate the extent of the application of entrepreneurial innovations in the food processing and manufacturing targeted firms in Lusaka from the year 2017 to 2021. The study was guided by three specific objectives which were: to establish the extent of application of entrepreneurial innovations in the food processing and manufacturing in targeted firms in Lusaka; to analyse the contribution of entrepreneurial innovations to the food processing and manufacturing industry from 2017 to 2021, and to assess the performance of the food processing and manufacturing industry in Zambia for the period under review with regard to application of entrepreneurial innovation. Three dairy processing industries in the Lusaka district were studied, focusing on their production of customer-centric solutions while adhering to food safety and quality standards. The study employed a descriptive research design to achieve the set objectives. Two sampling techniques were used: convenience sampling for selecting dairy food industries and snowball sampling for individuals with in-depth information on the thematic subject matter. The study used an interview guide to collect the required data from the ten overall interviewees and five key informants participated in semi-structured interviews. The interviews covered key themes like knowledge utilization, collaboration, innovation realization, triggers and outcomes, important decisions, and challenges. Data analysis was conducted using NVivo (version 12.2), and operational definitions of codes were developed. The findings showed that the two types of innovative entrepreneurship; product and market innovation were being applied in Zambia's dairy food manufacturing industry though product innovation had a minimal effect on dairy manufacturing firms. Analysed in terms of the conduct of their businesses, entrepreneurial innovations to the food processing and manufacturing industry makes valuable contributions to the GDP by creating jobs, achieving economic development, reducing inequalities, and plays a crucial role in fostering economic transformation. With regard to the performance of the food processing and manufacturing industry, the study noted that the dairy manufacturing industry, which plays a significant role in economic development, could use entrepreneurial innovations as a tactical option to improve its competitiveness, survival, and growth in the fast-paced competitive business climate. Overall, the study showed that market innovation has an impact on how well dairy manufacturing companies succeed. These companies performed better when they expanded their market by luring new clients with discounts and by using online marketing. Accordingly, the study draws the conclusion that market innovation can enhance the performance of dairy manufacturing companies since it has a favourable and significant impact on performance. The study, therefore, recommends for the formulation and implementation of any policy regulatory and/or legislative corporate measures from government through the line ministries (livestock and fisheries, agriculture, commerce, trade and industries etc) aimed at easing the cost of doing business for the industry players to sustain their production, productivity, investment, profitability, and portfolio expansion.

**KEYWORDS:** Application, Entrepreneurial Innovation, Food Manufacturing Firms, Lusaka.

### 1. INTRODUCTORY BACKGROUND

Food processing has a major role in boosting local economies in East and Southern Africa by connecting millions of small-scale farmers with suppliers and raising rural incomes (USAID, 2017). The demand for food is higher than ever as the region's population and urbanization rates rise quickly and hundreds of millions of people still experience food insecurity. Yet, a lack of technical and business expertise as well as funding infrequently causes small and expanding local processors to struggle in creating wholesome,

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reasonably priced goods that abide by legal and food safety regulations. The food processing sector in Africa has enormous growth potential. It is estimated that by 2040, the value of food purchased in East and Southern Africa will expand seven-fold (TechnoServe, 2017). Growing processors can make a big contribution to meeting the region's food needs if they have access to more inputs, new markets, financing, and business expertise in food processing best practices, such as manufacturing, food safety, packaging, marketing, budgeting, and planning. Innovation encompasses the creation, acceptance, integration, and utilization of unique ideas with added value in both the economic and social domains. It also involves the revitalization and expansion of goods, services, and markets, the creation of novel production techniques, and the implementation of fresh management frameworks. It is a procedure as well as a result (Crossan & Marina, 2010).

The study explores how entrepreneurial innovations are applied to specific food manufacturing firms in Lusaka in order to promote economic development. From 2006 to 2011, the manufacturing sector contributed positively to both employment and economic growth, (Pandian, 2017).

Between 2006 and 2011, Zambia's manufacturing industry grew by an average of 4% annually, (Zambia Invest, 2022). According to Frank et al. (2018), between 2007 and 2010, formal employment increased by an estimated 12,000 as a result of foreign direct investment. The fabricated metal goods, non-metallic mineral products, and food, beverage, and tobacco subsectors are important ones that have fuelled this expansion. However, the growth rate of the manufacturing sector has consistently been on the slide from 5.8 per cent in 2006 to 2.5 percent in 2009 and 4.2 per cent in 2010 (Frank, et al., 2018).

According to (Adam, et al., 2011) a country's manufacturing sector has a higher rate of innovative entrepreneurship, which indicates improved economic development. (However, the effectiveness of innovative entrepreneurship in Zambia's food processing industry is unknown.)

Scholars have contended that the implementation of innovative entrepreneurship in the manufacturing sector is a prerequisite for economic progress, a claim that may not hold true in underdeveloped nations. Policymakers and academics will be able to learn new perspectives on the various types of creative entrepreneurship and their impact on economic growth thanks to the study's conclusions.

Zambia's food processing industry provides a variety of investment options. According to Paul et al. (2020), the most promising and financially viable sectors of Zambia's food business are aquaculture, dairy, edible oils, horticulture, poultry, and baby and high-nutrition foods. The (UNIDO, 2020) illustrates Zambia's average GDP and Manufacturing Value Added (MVA) growth rates from 2010 to 2018, these rates were 4.6% and 5.5%, respectively. Its GDP growth was comparable to that of LMI countries on average, but the industrial sector's development was noticeably faster.

However, neither of the investment opportunities which Zambia offers in its food-processing sector achieves the goals outlined in the nation's growth objectives. The Vision 2030 aimed at economic growth rates of between 6% and 10% on average, while the 7th National Development Plan had a target growth rate of 10.6% for MVA to be met by 2021 and the industrial strategy aimed at an MVA growth rate of 20% on average by 2027 (The World Bank Annual Report, 2018).

The percentage of the population living on less than 1.9 USD Purchasing Power Parity (PPP) per day decreased from 64.4% to 57.5% between 2010 and 2015 due to economic growth. Nevertheless, the poverty rate remains higher than it was in 2002 (49.4%) and significantly higher than the average for LMI countries (12.3%). Additionally, a growth in income inequality has been noticed in the country, and this is also reflected by the shift in the Gini index (from 55.6 to 57.1 between 2010 and 2015). Breaking down the period of analysis into two, it was discovered that the growth rates of MVA and GDP fell from 5.7% and 7% between 2010 and 2014 to 3.5% and 3.7% between 2014 and 2018 (The World Bank Annual Report, 2018).

As the export analysis will show, Zambia is strongly dependent on copper exports, and the country's economic patterns closely track variations in the price of copper throughout the world. Between 2018 and March 2020, copper prices fell, which was detrimental to Zambia's economy. Due to the Kwacha's reliance on copper prices, the nation's attempts to diversify its economy were hampered and all exports as well as imports of equipment and industrial inputs were impacted. Climate change has negatively impacted agriculture and agro-processing in recent years by causing electricity shortages and decreased crop harvests, in addition to concerns over copper reliance (The World Bank Annual Report, 2018).

Aware of the copper dependency challenge, the government has put in place an array of interventions in order to support the economy through structural change and diversification, and by targeting their efforts to support the most vulnerable, following the blueprint of the national development plans and industrial policy. Nevertheless, financial difficulties—since revenue is heavily

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reliant on copper—and significant external debt have hampered the attempts (Zambia Institute for Policy Analysis and Research, 2020). The manufacturing sector's GDP contributions between 2010 and 2018 are shown in Figure 2 below (World Development Indicators, 2018).

The government has set a target in the industrial policy to have manufacturing account for 15% of GDP by 2027 in an effort to industrialize and because it recognizes the critical role that the manufacturing sector plays in economic growth (partly by studying the Asian comparator countries). Encouraging the manufacturing sector will benefit the nation because it is the backbone of the economy, forging strong connections with other industries, and producing beneficial spillovers.

One important indicator of a country's well-being and a key driver of its economic progress is the degree of innovation in its entrepreneurial activities. But the actual evidence that supports this assumption now available is insufficient (Sander & Ande'r Van, 2017).

The Real Gross Domestic Product (GDP) growth rate for Zambia is clearly indicated in the (African Development Bank Group, 2020) report, which is lower by the following estimates: There will be 2% in 2019 and 4.0% in 2018. This has been linked to the drought that hit the country's western and southern regions, respectively, which had a detrimental effect on agricultural output in 2018 and 2019 and, in every case, on the production of hydroelectric power.

Activity in Zambia's majority manufacturing sectors was slowed down by prolonged energy load shedding and rising electricity rationing. According to estimates from the African Development Bank Group (2020), trade and industrial activities will decrease the nation's growth to 2.4% in 2020 and 2.9% in 2021. The country also faced slower mining, lower output, and lower copper prices.

A country's manufacturing industry's higher percentage of creative entrepreneurship is indicative of improved economic development, claim Marco & Luiz (2015). Nonetheless, some scholars have contended that inventive entrepreneurship is essential for economic growth, which may not hold true in developing nations for businesses that operate carelessly, particularly in the industrial sector (Dvouletý & Mareš, 2016). The 2030 goals set forth in Zambia's Seventh National Development Plan (7NDP) would allow the nation to accomplish economic transformation through innovation and industrialization diversification. The nation must promote creative entrepreneurship in the manufacturing sector if it is to meet its aim.

Although the nation's industrial output increased between 2010 and 2018, the manufacturing sector's share of the GDP still seems to be small. The nation's current goal is to achieve this goal and move up the development ladder. The nation is adhering to the primary strategic trajectories delineated by Vision 2030, the 7th National Development Plan, and the National Industrial Policy 2018 in this regard.

Each of these texts emphasizes the importance of value creation and diversification. The research conducted, which contrasts Zambia's performance with both national goals and peer LMI nations' performance, demonstrates that the Programme for Country Partnership (PCP) is implemented promptly to assist in bridging the gaps concerning the declared industrialization objectives. Zambia's manufacturing employment share has increased significantly, but the manufacturing sector's GDP contribution has not increased proportionately. Value addition which may be further broken down into its component parts is recognized as a key area of attention for the PCP, notably in the manufacturing sector.

### 1.1. Problem Statement

Innovative entrepreneurship has been the major centre of attention by policy makers and governments (United Nations Report, 2012), in countries where it has been adopted such as India, Japan, and West Germany. These countries adopted innovative entrepreneurship in the manufacturing industry where it has greatly contributed towards economic growth (Adam, et al., 2011). In the recent past, Zambia has made significant strides in achieving self-sufficiency in food production. Despite having made progress, a huge production–consumption gap remains (Paul, et al., 2020). This has led to Zambia importing substantial amounts of manufactured and processed foods. Zambia's population has grown from 13.7 million in 2011 to approximately 19,610,769 in the year 2022 and is expected to reach about 26.9 million by 2035 (ZamStats, 2022). With the growth in population, demand for food in Zambia is expected to grow. The World Bank projects that by 2030 (Paul, et al., 2020), food demand in Zambia will triple to \$25 billion. In addition, there has been an increase in demand for food imports from Zambia by neighbouring countries in the COMESA and SADC regions. This presents a huge investment opportunity in the country's application of innovative entrepreneurship in the food and processed foods manufacturing industry meant to ameliorate the possible looming deficit. The studies by Dvouletý et al., (2016), Tadesse & Gachango, (2022) underscored the importance of prioritizing innovative entrepreneurship in Zambia's food processing industry for desired outcomes. Despite increased attention on entrepreneurial

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innovations, a gap persists in understanding their practical application and impact in the food manufacturing and processing industries in Zambia. This study, therefore, was poised to scrutinize the application of entrepreneurial innovations in food processing and manufacturing firms by among others; analysing their strategies, and results to offer insights into their effectiveness meant for growth and competitiveness.

### 1.2. Study Objectives

- To establish the extent of the application of entrepreneurial innovations in the food processing and manufacturing industry in targeted firms in Lusaka.
- To analyse the contribution of entrepreneurial innovations to the food processing and manufacturing industry from 2017 to 2021 in Lusaka.
- To assess the performance of the food processing and manufacturing industry for the period under review with regard to application of entrepreneurial innovation in Lusaka.

## 2. LITERATURE REVIEW

### 2.1. Introduction

Because it supports small-scale farmers and raises incomes in East and Southern Africa, the food processing industry is essential to regional economies (USAID, 2017). Comparing it to other manufacturing industries, research indicates that it places less of a priority on technological and product innovation (Mauricio et al., 2021). The low research and development (R&D) investment compared to sales is indicative of this (Trott and Simms, 2017). Process innovation is frequently given priority in the industry above new product developments (Triguero et al., 2013). In order to meet market expectations, innovation in this industry includes improving management systems, new marketing strategies, process optimization, and product enhancement. Despite being a competitive business, the food production industry displays lower R&D investment and fewer patent applications (Dernis et al., 2015; Trott and Simms, 2017). Zambia has encountered difficulties in achieving its objectives of industrial expansion and economic diversification (Lusaka Times, 2017).

Innovation is a critical driver of economic growth and problem-solving across various sectors, with the food industry experiencing notable advancements in recent decades (Glover & Poole, 2019). Due to the dynamic nature of the food sector and its susceptibility to changes, innovation is imperative, enhancing competitiveness through the introduction of novel products (Reardon et al., 2019). Despite historically low research and development (R&D) investment in the food industry, fostering innovation capacity emerges as a key factor influencing company performance and growth (Ciliberti et al., 2016). Research consistently emphasizes the strategic link between economic success and innovation (Cai et al., 2018).

In the context of the food sector, innovation proves vital in addressing challenges related to technology development, reducing chemical use, and environmental protection (Carraresi et al., 2016). Whether in the form of process or product innovation, it enables cost reduction and better aligns with consumer demands for quality, safety, usability, and storage capacity (Triguero et al., 2013). Given the globalized nature of food markets, innovation becomes not just an option but a necessity for companies to thrive (Kraftova & Kraft, 2018).

Technological innovation becomes particularly crucial for the survival and expansion of food companies in developing countries (Luo et al., 2017). The adoption of innovations is identified as a fundamental criterion for increasing productivity, enhancing food security, supporting growth, and alleviating poverty (Gebremariam & Tesfaye, 2018). Over the past seven decades, innovations have significantly transformed food systems, encompassing production, processing, distribution, and consumption (Glover & Poole, 2019).

Comparing the food production industry to other manufacturing sectors, research continuously shows that it offers less support for new product and technology innovation (Hullova et al., 2019). Although competitive, the sector favours process innovation over product improvements, demonstrating a preference for improving operations over new product development (Triguero et al., 2013). Therefore, the purpose of this part is to analyse pertinent literature on the issue under review in an effort to identify any gaps that this study hopes to fill.

### 2.2 Empirical Review

#### 2.2.1. *Extent of the application of entrepreneurial innovations in the food processing and manufacturing firms in Lusaka.*

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Several definitions from various writers must be presented in order to completely comprehend the phenomenon of innovative entrepreneurship. (Lindholm Dahlstrand & Stevenson, 2010) emphasizes the distinction between "ordinary" and "innovative" entrepreneurship, pointing out that the two have different economic results.

The generation of jobs is the primary contribution of regular entrepreneurship. The founders of innovative businesses may feel more pressure to grow because of the venture's opportunity and innovativeness, even while creative entrepreneurship is more likely to result in more value-added jobs, wealth creation, and businesses with higher growth rates (Stevenson & Dahlstrand, 2010).

### (a) Forms of Innovative Entrepreneurship

It is well recognized that entrepreneurship supports the expansion of a variety of economic indicators, such as the manufacturing sector. (Hearn, 2018) describes the various ways in which Adam Smith's (1776) sociological theory for the eighteenth century viewed innovation, suggesting that it was an excessive driving force behind economic activity. For instance, nations like West Germany, Japan, and India that have embraced innovative entrepreneurship in the industrial sector have witnessed an improvement in economic growth.

At the present moment, it is acknowledged globally that innovation is the engine of progress for it is a significant aspect towards accomplishing development (Bedianashvili, 2017). Thus, as the study from the United Nations Economic Commission for Europe (2012) suggests, creative entrepreneurship is seen as a crucial component of the current economic growth.

#### (i) Product Innovations

What kinds of innovation improve a firm's ability to compete has long been a contentious topic of discussion. Prajogo (2016) asserts that while product innovations work well in a dynamic setting, they fall short in a cutthroat marketplace. Instead, superiority in a highly competitive industry is demonstrated by process advances.

#### (ii) Technological Innovation

One of the most unique forms of innovation, according to a different perspective on innovation research, is technological innovation (IGI Global, 2022). In fact, imitations target a lot of product innovations, such as new items and innovative characteristics (such designs or promotions) of products (Rajitha & Martha, 2013).

#### (iii) Process Innovation

Since most process innovations rely on social network-based supply chains or the confidentiality of production procedures, they are rarely copied. In particular, in a competitive and mature market, creative enterprises meet many copycats (Christos, et al., 2017).

### (b) Product and Technological Innovation – Food Manufacturing Industry

Economic growth and progress are contingent upon innovation (Jorge & Fitz-Oliveira, 2020). As a result, most economies place a high priority on it (Casanova et al., 2017). An important component for the development of a firm is to establish a competitive advantage (Lafuente et al., 2019), which can be done through technical advances (Hoflinger et al., 2017).

The number of novel foods has significantly expanded in recent years due to the promotion of innovation in the food sector by innovative food technology (Vidigal et al., 2015). Despite the literature's traditional classification of this industry as having little research intensity, innovation has drawn special attention in this field (Bigliardi & Galati, 2013).

However, innovations which are defined as new goods, procedures, or services—are acknowledged as a crucial instrument for food industry businesses to differentiate themselves from rivals, satisfy customers, and generate a lot of new ideas (Bigliardi & Galati, 2013). Nevertheless, not every business participates in the creation of their ideas (Acosta et al., 2015). Furthermore, in this context, substantial research has been given to new technologies which are employed in food production and processing (Vidigal et al., 2015).

Compared to other manufacturing industries, prior research has shown that companies in the food manufacturing sector do not significantly support product and technology innovation activities (Mauricio, et al., 2021).

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The low ratio of research and development (R&D) effort to sales (Trott and Simms 2017) is indicative of this. Triguero et al. (2013) state that this industry has historically focused on process innovation, and empirical evidence suggests that process innovations in the food manufacturing sector outperform product innovations on an intrinsic basis.

### **2.1.2. Contribution of Innovative Entrepreneurship to Manufacturing Industry**

Innovation might include developing or implementing new marketing strategies, re-engineering goods or services to satisfy consumer demand, introducing new procedures to increase productivity, and establishing or implementing new management systems to boost operational effectiveness.

When compared to other manufacturing industries, the food production business does not considerably encourage technological and product innovation, according to previous studies (Hullova et al., 2019). Food production is one of the most advanced and competitive sectors.

This is demonstrated by the low ratio of R&D effort to revenue (Trott and Simms, 2017) and the minimal number of patent applications (Dernis et al., 2015). Triguero et al. (2013) claim that instead, this industry has been focusing on process innovation. Process improvements are intrinsically better than product improvements, as the food processing industry has shown.

Transformation of the economy through economic diversification and industrialization has been on Zambia's development agenda for over five decades now and has not yet reached expectations (Lusaka Times, 2017). "A fundamental change in the structure of the economy and its drivers of growth and development" is the definition of economic transformation given in the United Nations Economic Commission for Africa (2013) report. Zambia must give creative entrepreneurship in the manufacturing sector top priority if it is to meet the 2030 deadline set forth in the Seventh National Development Plan (7NDP).

#### **(a) Zambia Progressiveness in Innovation**

Zambia is classified as being in the Factor-Driven Stage of the Global Competitiveness Report (2018), meaning that its competitive advantage is mostly on producing primary commodities. Zambia's primary exports are agricultural and mineral goods (copper and maize/cereals), as the country is heavily dependent on mining and rain-fed agriculture.

#### **(b) Attemptability to Innovation**

Tidd and Bessant (2013) state that multinational creative firms have persisted in evolving from the conventional methods of manufacturing and entrepreneurship to the demanding methods of conducting business. One example of how innovative entrepreneurship may be applied to increase productivity in the industrial sector is Nokia, which transitioned from pulp and paper to electronics and eventually became a global leader in telephony.

#### **(c) Economic Transformation through Innovation**

The United Nations Economic Commission for Africa (2013) defines economic transformation as a major shift in the economy's growth and development drivers and structure. As a result, the country's development program has included changing Zambia's economy through innovation and industry diversification, however the goals have not been fulfilled. By the end of 2015, Zambia's production of processed foods and drinks had stagnated to a level below that of the average lower middle-income nation.

The INDSTAT database (UNIDO, 2020) indicates that unusual weather events in 2018 caused a significant decline in the Revealed Comparative Advantage (RCA) of manufactured grain mill products. This is especially remarkable because, among all manufacturing-related industries, this one has one of the greatest employment shares.

Visualization of the Food, Beverage, and Tobacco Sector's Latent Comparative Advantage (LCA) Analysis Using the INDSTAT Database (UNIDO, 2020) the significant growth in worldwide demand which is particularly obvious for LMI countries as well as the relevant national demand even though below the norm for such products, shows that boosting production of the sector will positively contribute to economic growth. Moreover, creating agricultural value chains will undoubtedly help the impoverished and those who work in rural areas, which include a sizable section of the population.

Along with beef and meat derivatives, dairy products are among the most frequently imported goods in Zambia's processed food industry, according to a four-digit study based on trade statistics. With yearly growth rates ranging from 15% to 18%, cocoa, chocolate, sugar confectionery, and prepared animal feeds are the subsectors with the fastest-growing global markets (UNIDO, 2020).

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### **(d) Contribution towards Employment Creation**

By generating jobs, the manufacturing sector raises the value of the global Gross Domestic Product (GDP). Since low-income countries can improve their backwardness in comparison to those that have already experienced rapid industrial development with an excessively large share of manufacturing activities, achieving economic development through the application of innovative entrepreneurship in the manufacturing industry remains crucial for these countries (Nobuya, et al., 2017).

### **(e) Opportunities for Dairy and Milk Production, Marketing, and Income**

The cattle industry is by far the most important aspect of Zambia's livestock economy, both economically and culturally. In an effort to reduce the high rates of poverty in the country, the Republic of Zambia government promotes economic growth and job creation through the development of a more diverse and competitive economy. The dairy subsector may help achieve these development goals. About 3,000–4,000 dedicated smallholder and commercial dairy producers in Zambia are estimated by the Agricultural Consultative Forum (ACF, 2012) to use pure and cross-bred dairy cattle to produce milk for the formal market. Nonetheless, over 300,000 traditional cow-owning households with milk-producing livestock exist, according to the World Bank (2010).

Social and cultural factors influence the behavior of traditional cattle ranchers, which differs greatly from that of commercial producers. For example, people generally view cattle as a source of food, draught power, and a way to save wealth rather than as a commercial economic opportunity.

Around 80% of the nation's cattle herd, which is thought to number over 3 million animals, are kept by traditional farmers, who are significantly less productive than commercial farmers in terms of calving rate, calf mortality, adult mortality, off-take rate, live weight, and growth (David, et al., 2006) (Bank World, 2010). A significant portion of these farmers' milk is sold in unofficial markets.

Of the 253 million litres of milk produced in the country, only 44 million litres are believed to be sold through legitimate channels (ACF, 2012). For the most part, traditional cow caretakers don't sell most of the raw milk they produce. This milk, frequently referred to as "lost milk," is occasionally wasted or offered for sale nearby in either its raw or fermented form.

### **2.1.3. Performance of the food Manufacturing Industry in Zambia from 2017-2021**

When compared to other manufacturing industries, the food production company does not considerably facilitate product and technological innovation (Hullova et al., 2019). One of the most developed and competitive industries is food production. The low number of patent applications (Dernis et al. 2015;) and the low ratio of R&D intensity to revenue (Trott and Simms 2017) serve as examples of this. Instead, process innovation has been the industry's main priority (Triguero et al. 2013). Reality reveals that process advancements outperform product improvements in the food production industry.

Transformation of the economy through economic diversification and industrialization has been on Zambia's development agenda for over five decades now and has not yet met expectations (Lusaka Times, 2017). The (United Nations Economic Commission for Africa, 2013) report defines economic transformation as 'a fundamental change in the structure of the economy and its drivers of growth and development'. If Zambia is to achieve this goal by 2030 as outlined in the Seventh National Development Plan (7NDP) then, there is need for the nation to prioritize innovative entrepreneurship in the manufacturing industry.

#### **(a) Policy on Entrepreneurship Development in Zambia**

The following are some policy documents formulated at fostering development in Zambia through the application of innovative entrepreneurship:

#### **(b) The Seventh National Development Plan**

Zambia has been working on its development plan for more than 50 years, but economic transformation through industrialization and diversification has not yet achieved the country's goals (Lusaka Times, 2017). Economic transformation is described as "a fundamental change in the structure of the economy and its drivers of growth and development" in the (United Nations Economic Commission for Africa, 2013) study.

Zambia must give innovative entrepreneurship in the manufacturing sector top priority if it is to attain this target by 2030 as stated in the Seventh National Development Plan (7NDP).

#### **(c) Citizen Economic Empowerment Commission Act No. 9 of 2006**

The Zambia government through the Citizen Economic Empowerment Commission is empowering citizens with entrepreneurship funds as well as training on entrepreneurship development. The Citizens Economic Act No. 9 of 2006 is principally aimed at uplifting the targeted citizens who have suffered marginalization.

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It is meant to level the playing field and raise the citizens to a position where they can effectively participate in the national economy. Some of the key areas of the Act include the definition of empowerment as a broad based and multifaceted strategy aimed at substantially increasing the participation of targeted citizens at all levels of the population in the economy, fostering wealth creation and significantly decreasing income inequalities.

The Act also defines targeted citizens as, "person who is historically marginalized or disadvantaged and whose access to economic resources and development capabilities has been constrained due to various factors including race, sex, educational background, status and disabilities". The objectives of the Act include among others: (i) The establishment of the Citizens Economic Empowerment Commission (ii) Establishment of the Citizens Empowerment Fund (iii) Promoting the empowerment of targeted citizens; and (iv) Promoting investment through fostering joint local and foreign ownership of companies.

Section 9 of the Act establishes the Citizens Economic Fund aimed at supporting the development of broad-based empowerment programmes. The Fund was to be vested in the Commission but managed and administered by various financial institutions and fund managers.

### (d) The Vision 2030

The country's objective of diversifying away from copper into the export of value-added products is highlighted in all current related development plans. The Vision 2030, for example, states that it aims to "increase manufactures exports as a share of merchandise exports to 71 percent by 2030." The vision of Zambia's Trade Policy is to "make Zambia a net exporter of value-added goods and services through competitiveness at the domestic, regional and global level."

To do so, the Vision 2030 stated to focusing on addressing macroeconomic conditions, infrastructure, technology and research and development, as well as skills and meeting sanitary and phytosanitary requirements, improving border efficiency, as well as making exported products more competitive, such as by reducing production costs and increasing the quality of goods. The Vision 30 also hopes to stimulate investments into export-oriented industrial sectors.

In line with this, the National Export Strategy (NEST) 2018 has a vision of "A structurally transformed, diversified and competitive export sector anchoring Zambia's socio-economic development." (NEST, 2018, p. 2) and has corresponding objectives. The implementation of the policy and strategy is necessary to ensure export earnings are also derived from non-copper trade.

### (e) National Industrial Policy (NIP)

Zambia has prioritized the manufacturing sector as a driver of its envisioned industrialization, economic diversification and growth, wealth generation and jobs creation, especially for youths and women. Through its National Industrial Policy (NIP), food and beverages processing has further been identified as a leading subsector to improve manufacturing sector growth from 5% to 20% p.a. and to improve manufacturing sector contribution to GDP from 8% to 15% by 2027. Agro processing enjoys special tax incentives and pays the least corporate income tax (10%).

### (f) Securing the Supply Chain

According to International Bank for Reconstruction and Development and The World Bank, (2018) the crops featured in transformational potential in both environmental and economic terms, they include premium coffee and Cocoa that can be grown under forest cover rather than through slash-and-burn practices, and new, biodiversity-friendly native crops developed as better alternatives to existing raw materials.

The initiatives surrounding these crops empower farming communities to raise production standards while offering different levels of guarantee on product uptake. They allow participating companies to count on access to highly traceable food materials at needed quality, quantity, and price levels, and to be sure that they are not associated with environmental degradation.

Supply chain security can also be achieved more indirectly, as Nestlé is showing in Pakistan (Food Loss & Waste Protocol, 2017). While it has a long history of working with farmers to improve milk production standards, the company is finding another way to promote both economic activity and better food standards.

Instead of training farmers directly, Nestlé agronomists, with the support of the United Nations Development Programme (UNDP) and the Government of Pakistan, are developing a cohort of women entrepreneurs empowered to sell animal healthcare services to their Punjabi farm communities. Better livestock health ultimately translates into improved supply conditions for Nestlé and other local buyers.

According to (Szabo & Herman, 2012) Innovative entrepreneurship has been a major centre of attention by policy makers and governments of countries which have adopted innovative entrepreneurship in the manufacturing industry such as India, Japan and West Germany which has resulted to their contribution towards economic growth. Furthermore, (Atiase,



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et al., 2018) indicates that the higher rate of entrepreneurship in a nation is a sign of improvement in economic development.

### (g) Market Competition in Food Manufacturing Industry

The market Competition in food manufacturing industry is supported by a variety of other empirical studies using different indicators of entrepreneurial activity. For instance, (Kuen-Hung & Shu-yi, 2013) examines the effect of market competition, measured as an increase in the number of competitors in relation to the development of companies' productivity performance.

An increase in the number of competitors is a possible measure of entrepreneurship, since the introduction of a new product or the start-up of a new firm is an entrepreneurial act. Using data from around 600 UK manufacturing firms from the periods 1972–86 and 1982–94, the authors find evidence that competition, or an increase in the number of competitors, has a positive impact on economic development.

According to (Amoros, et al., 2013), the ten years Global Entrepreneurship Monitor shows that the national level of entrepreneurial activity is statistically significant for associations with subsequent levels of economic growth. Global Entrepreneurship Monitor data also suggests that there are no countries with high levels of entrepreneurship and low levels of economic growth. For this reason, it can be assumed that an analysis of more countries over a longer period of time would accumulate evidence of a positive link between high rates of entrepreneurship and economic growth.

### (h) Percentage Share of Manufactured Goods in Zambia

Overall, the share of manufactured goods in Zambia's total (merchandise) exports is very low compared to the average of lower middle-income countries and to the comparator countries showed that in 2018 a mere 16% of exports stemmed from the manufacturing sector, in contrast to 59% for the average LMI country group and above 80% in Tanzania, Malaysia, Thailand and Botswana (United Nations Comtrade Database, 2020).

The manufactured export values for Zambia in 2010 and 2018 were almost equal, although the country experienced a sharp increase until 2013 followed by a drop back to 2008-2010 values in 2015, after which there was little change. The lack of growth of manufactured exports in a period where total exports did increase resulted in a decline in the share of manufactured exports in total exports. This indicates a loss of competitiveness of the country's manufactured goods in global trade, (United Nations Comtrade Database, 2020).

Nutrition challenges (especially among children), fast-growing population (3% p.a.), rapid urbanization (4% p.a.), sustained economic growth and changing food consumption patterns are fuelling demand for processed health foods in Zambia. According to the World Bank, Zambia's annual food demand is projected to triple to \$25 billion by 2030. Processed health foods and perishables will be the highest in demand (United Nations Comtrade Database, 2020).

The need for Zambian food by neighbouring countries is also fast increasing, requiring Zambia to produce and process more food. Continental food imports are also on the rise and the World Bank has projected a fourfold increase to \$400 billion of Africa's urban food market value by 2030.

## 2.2. Gaps in the Literature

Whereas a number of scholars have written papers on the Application of Entrepreneurial Innovations in Food Manufacturing, none has dealt with the current study's focus which is on scrutinizing entrepreneurial innovations in selected food manufacturing firms in Lusaka, as the gap persists in understanding their practical application and impact. It is of paramount importance to note that this study will bring out unique and dynamic experiences in evaluating the strategies and results to offer insights into the effectiveness for growth and competitiveness on the application of Entrepreneurial Innovations in the food manufacturing firms. Carrying out such a study particularly focusing on the selected Dairy Food Manufacturing firms in Lusaka. A number of studies as reviewed have focused on the food manufacturing firms in general but the current study will deal with Dairy Food Manufacturing Firms in Lusaka.

## 2.3. Theoretical Frameworks

This study was guided by three (3) fundamental theories relevant to the study focus. These being: Innovation Firm, Resource Based, and the Dynamic Capability theories.

### 2.3.1. Theory of the Innovative Firm

This theory was put forward by William Lazonick, an economist, to help explain superior performance in the wake of imperfect markets. According to the theory, the function of a firm is to transform productive resources into goods and services that can be commercialised. A firm can accomplish this by being innovative. Accordingly, superior

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economic performance results from innovative enterprises that create products of higher quality at lower cost (Lazonick, 2013).

According to the theory, a firm is able to gain and sustain its competitiveness to compete effectively in its industry through innovation. Such firms engage in innovation to establish or sustain their competitiveness. An innovative firm may also innovate to retain its market share against an innovative competitor or to gain a strategic market position in the market (Porter 1990).

Innovation enables the innovating firm to progressively penetrate various market segments based on the different economic power of the buyers. This provides a base upon which the firms can develop capabilities to access other market segments (Lazonic, 2013). The innovative firm is also able to use innovation to achieve differentiation by offering different products and services to customers that are unique. In this way innovation strategy enables firms to compete. Continuous improvement of products, processes, and methods as in innovation leads to differentiation which results in increased firm competitiveness in innovative firms (Porter, 1988).

This theory informed the study of the role of innovation and how it leads to firm competitiveness through the production of superior products and services in the market. Innovation also leads to differentiation, which is an important factor in competitiveness that leads to new unique products, processes, markets, and organizational methods. This helps firms to deal with competition. The theory affirms the role of innovation in firm competitiveness.

### 2.3.2. The Resource Based Theory (RBV)

The theory argues that firms' own resources which they can employ to become competitive. The theory posits that a firm can gain competitive advantage by being in possession of distinctive resources or capabilities which are valuable, difficult to imitate and rare in the marketplace (Baark et al., 2011). Proponents of this view argue that organizations need to utilise internal sources of competitiveness as opposed to external sources. According to RBV proponents, it is much more feasible to exploit external opportunities using existing resources in a new way rather than trying to acquire new skills for each different opportunity. Firm resources and processes are important to firms since they influence its behaviour and activities. A resource is an asset, competency, organizational processes, information, knowledge, or capability and is considered to be unique if it is valuable, rare, difficult to imitate and has no close substitute (Barney, 2002). It is the distinctive resources that lead to sustained competitiveness and superior returns in firms.

Financial resources are among the most important bundle of resources for a firm and can be used to support innovative activities, especially R & D. Likewise human capital is a key determinant of firm performance and competitiveness. Another key resource for firm competitiveness is the knowledge-based resources. Knowledge facilitates the discovery of ideas and exploitation of opportunities for innovation. It is therefore useful for the manipulation, transformation, and the development of the other resources for competitiveness (Wiklund & Shepherd, 2013).

This theory informed the study of another factor of competitiveness as firm resources that affect a firm's activities including innovation. Firm resources influence a firm's behaviour, and this includes how a firm competes in the market. Resources that are unique, distinct, rare, and hard to imitate give a firm a competitive edge.

### 2.3.3. The Dynamic Capability Theory

The Dynamic capability theory was put forward by (Teece and Pisano, 1994). This theory explains how firms achieve and sustain competitiveness based on the processes that take place in a firm to match the dynamic, volatile environment. The emergence of the theory was necessitated by the shortcoming of the resource based and action-based theories in addressing dynamic economies.

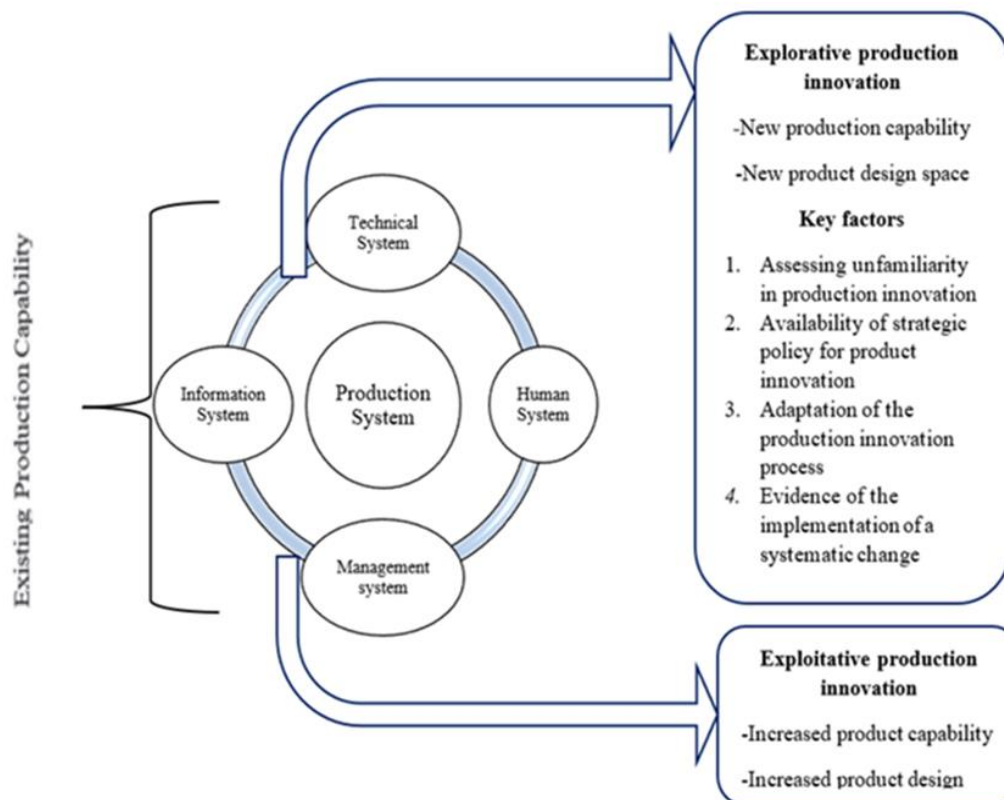
The Dynamic capability paradigm embraces entrepreneurship, innovation, organizational learning, and knowledge and change management. The ability of a firm to adjust to changes in the market through innovation is crucial for the competitiveness of firms. It is argued that the fundamental impulse that drives capitalism stems from the innovation of new products, new methods of production, new markets, and new forms of industrial organization (Schumpeter, 1942). Dynamic capabilities refer to a "firm's capability that allows it to develop new products and processes in response to dynamic market situations". Dynamic capabilities include skills, procedures, organizational structures, and decision rules that can be employed by firms to create and capture value.

The capabilities may stem from change routines, product development and innovative managerial capabilities. They enable the firm to align its distinctive resources/competences to the changing business environment. Dynamic capabilities theory informed the study of the critical long-term profitability of firms and how this enable firms to

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profitably organize their resources, competences, and other assets if they are to sustain themselves in changing environments and markets. The capabilities are crucial in a dynamic environment of rapid change prevailing in a growing number of industries.

### 2.4. Conceptual Framework



**Figure 1: Study Conceptual Framework**

Source: (Larsson, 2020)

As shown in **Figure 1** above, this study is guided by variables aligned to the study objectives. The first research objective of the study focused on explorative production innovation factors. It examined unfamiliarity and strategic policy's impact on product innovation in dairy processing firms in Lusaka. In the context of the conceptual framework for explorative production innovation, the study's second research objective focused on several key aspects. These included the adaptation of production innovation processes, evidence of systematic change implementation, and characteristics demonstrating the benefits of innovative entrepreneurship in manufacturing businesses, particularly in the food processing industry. The study's third research objective centred on increased product capability and design, assessing observable characteristics for evaluating the industry's performance.

It is clear that new production capability like exploitative innovation which increases product design space through the provision of extended possibilities, has the potential of making new product definitions that are not only financially viable but also technically feasible, thereby generating opportunities for completely new product designs.

As a matter of fact, (Ahlskog et. al., 2017) recognizes that a new production technology has the potential of enabling new product designs within the industry. A major difference between increased production capability and exploitative production innovation is that for existing products, new production capability is generally not applied to increase existing production system performance (Larsson, 2017).

### 3. METHODOLOGY

In terms of research philosophy, this explorative study was guided by an interpretivist research philosophy. It aligned well with understanding the subjective experiences and meanings attached to entrepreneurial innovations in the context of the selected dairy food manufacturing firms in Lusaka. This research project was undertaken at the industrial area in Lusaka district. Convenience sampling for the study population and snowball sampling for the sample size. The study population consisted

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individuals from four subsystems (technical, human, information, management) in three dairy firms. Roles covered: project managers, business development, production, engineering, and more. The sample size of 10 respondents and 5 key informants from three dairy industries were used for qualitative analysis in a milk processing study in Lusaka. In terms of how a researcher determines a sample size in qualitative research, Creswell (2012) has given salient insights. He states: "It is typical in qualitative research to study a few individuals or a few cases. This is because the overall ability of a researcher to provide an in-depth picture diminishes with the addition of each new individual or site. In some cases, you might study a single individual or a single site. In other cases, the number may be several, ranging from 1 or 2 to 30 or 40." It has previously been recommended that qualitative studies require a minimum sample size of at least twelve (12) participants to reach data saturation (Clarke & Braun, 2013; Fugard & Potts, 2014; Guest, Bunce, & Johnson, 2006). Therefore, a sample of fifteen (15) participants was deemed adequate for the qualitative analysis and scale of this study. The fifteen respondents were drawn from three dairy industries which process milk products in Lusaka. The study used a questionnaire to collect the required data from the ten overall respondents and five key informants participated in semi-structured interviews. The interviews covered key themes like knowledge utilization, collaboration, innovation realization, triggers and outcomes, important decisions, and challenges. Data analysis was conducted using NVivo (version 12.2), and operational definitions of codes were developed and the response rate was 88.2%.

### **4. FINDINGS**

#### **4.1. Extent of the Application of Entrepreneurial Innovations in the Food Processing and Manufacturing Firms in Lusaka**

The respondents and the key informants were asked to describe the meaning of innovation, the innovative entrepreneurship strategies in use or implemented, what triggered the need to develop the product and the production process as well as the period when the development of the production process of a product(s) started through the use of questionnaires and in-depth interviews. To understand the extent of the application of innovative entrepreneurship and the impact thereof in use by food processing and manufacturing industry in Zambia, the findings were recorded and described according to themes.

The feedback obtained from the participants regarding the applied innovative entrepreneurships in use by the dairy manufacturing firms showed that indeed innovations are understood as novel products, processes, or services recognized as an important tool for companies belonging to the food industry to stand out from their competitors and meet consumer expectations and for producing a large number of innovations. Therefore, Research and Development in the dairy production firms have continued to embark on research to discover new technologies which can be used in food production and processing in order to meet the continued change in consumer demands.

#### **4.2. Contribution of Innovative Entrepreneurship to Manufacturing Industry**

The respondents were asked to state who takes part in the implementation of the production process, the hindrances encountered during the implementation of the production process and the partners collaborated with during the implementation of the production process as well as how the transition of responsibility for the production solution were handled between the project and production operations. The findings were recorded and described according to themes. From the analysis, it is clearly shown that the contributions of innovative entrepreneurship to the food processing and manufacturing industry, particularly the dairy production industry, add value to the Gross Domestic Products (GDP) through employment creation and attainment of economic development. Innovative entrepreneurship also plays a critical part in fostering transformation of the economy through economic diversification and industrialization which has been on Zambia's development agenda for over five decades.

#### **4.3. Performance of the Food Manufacturing Industry in Zambia from 2017-2021**

The respondents and the Key Informants during the interview were asked to describe the performance of the food processing and manufacturing industry in Zambia, analysing the value that the implementation process of the product impacted on the customers and how the outcome was followed up. The findings were recorded and described according to themes.

The feedback provided by the participants pertaining to the performance of the food processing and manufacturing firms acknowledged the important role played by the dairy manufacturing sector and suggests that innovation is a strategic solution to the SMEs that can be employed to enhance their competitiveness, survival, and growth in the dynamic competitive environment. Innovation is highlighted as a core competence for SMEs for sustainable competitiveness.

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The concept of competitiveness was also noted from the feedback obtained from which several measures of competitiveness were identified. Most used performance measures that include profitability, productivity, market share and export performance have been used as proxies for firm competitiveness.

### 5. DISCUSSION OF FINDINGS

#### 5.1. Extent of the application of entrepreneurial innovations in the food processing and manufacturing firms in Lusaka

Certain observable characteristics that demonstrate an understanding of innovation, the entrepreneurial innovation strategies in use or implemented in the dairy processing firms, the need for developing a product and production process, as well as the development of the production process for a product or products, were used to evaluate the applied innovative entrepreneurship that is used by the dairy food processing and manufacturing industry.

Innovation was noted as a crucial capability and the dairy manufacturing firms and experts expect innovation to generate economic growth and solve the most pressing problems the finding was in line with the scholar (Glover & Poole, 2019). Similarly, it was noted that entrepreneurial innovations have increased in all the food system segments in recent decades (Reardon et al., 2019). Since innovative products promote competitiveness (Cai et al., 2018). Therefore, extent of the application of innovative entrepreneurship and the impact thereof in food processing and manufacturing in targeted firms in Lusaka, the finding was in line with the finding of (Bigliardi & Galati, 2013). Indeed, innovation was understood as novel products, processes, or services and was recognized as an important tool for food industry companies to stand out from their competitors and meet consumer expectations as well as for producing a large number of innovations.

The findings showed that the two types of innovative entrepreneurship, product and market innovation, were being used in Zambia's dairy food manufacturing industry. Product innovation had a minimal impact on dairy manufacturing firms, aligning with prior research of (Bigliardi & Galati, 2013).

#### 5.2 *Contribution of Innovative Entrepreneurship to Manufacturing Industry*

In the context of the conceptual framework for explorative production innovation, the study's second research objective focused on several key aspects. These included the adaptation of production innovation processes, evidence of systematic change implementation, and characteristics demonstrating the benefits of innovative entrepreneurship in manufacturing businesses, particularly in the food processing industry.

By meeting people's food demands and generating jobs, the food business contributes significantly to the economic growth of a nation (Singh et al., 2019). According to FAO (2020), the value of international commerce in the food and agriculture sectors has more than doubled in real terms since 1995, reaching USD 1.5 trillion in 2018 (or 7.5% of all goods trade between 1995 and 2018). The development of food products is a major area of research interest and a problem for both business and academia. A significant amount of input from business, academia, and regulatory bodies is needed to gain acceptability, development, and procedure.

The findings of the study showed that the contributions of innovative entrepreneurship to the food processing and manufacturing industry have made valuable contributions to the GDP by creating jobs, achieving economic development and playing a crucial role in fostering economic transformation. The manufacturing sector was able to achieve economic development as a result of the application of innovative entrepreneurship. The findings were in line with the (Lusaka Times, 2017) which indicated that Transformation of the economy through economic diversification and industrialization has been on Zambia's development agenda for over five decades now and has not yet met expectations".

#### 5.3 *Performance of the Food Manufacturing Industry in Zambia from 2017-2021*

The study's third research objective centred on increased product capability and design, assessing observable characteristics for evaluating the industry's performance.

The findings showed that the dairy industry's significant role, emphasizing the use of innovation to enhance competitiveness, survival, and growth in a competitive environment. The finding regarding Zambia's Dairy food manufacturing sector's performance was in line with (FAO, 2019) which states that Zambia's increased milk output is in line with both the regional and global trends for Africa. In 2019, 859 million tonnes of milk were predicted to be produced globally, up from an expected 843 million tonnes in 2018(FAO, 2019). The threat to the upward trend posed by warm, drought-prone weather may contribute to Africa's modest increase in productivity.

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## 6. CONCLUSION AND RECOMMENDATIONS

### 6.1. Conclusion

The study discovered that based on the extent of the application of entrepreneurial innovations in the food processing and manufacturing Firms that product innovation has a negligible impact on the performance of dairy manufacturing firms based on the results regarding the applied innovative entrepreneurship used by the dairy food processing and manufacturing industry. Their performance may see a slight improvement due to more product innovation brought on by quality products and product distinctiveness. The investigation came to the conclusion that there was no discernible impact of product innovation on performance.

The study based on the second research objective found that the contributions of innovative entrepreneurship to the food processing and manufacturing industry clearly demonstrates that the Dairy Manufacturing industry, which is classified as a food processing industry, makes valuable contributions to the GDP by creating jobs, achieving economic development through the use of innovative entrepreneurship in the manufacturing industry, and playing a crucial role in fostering transformation. Therefore, the study concluded that Dairy Manufacturing firms can consider process innovation to enhance their performance as process innovation and the performance of dairy manufacturing firms in Lusaka, Zambia are positively related.

The research found that based on the study objective, the performance of the food processing and manufacturing industry in Zambia from the years 2017-2021 played a significant role and Dairy Processing Firms can use innovation as a tactical option to improve their competitiveness, survival, and growth in the fast-paced competitive climate. The importance of innovation for the food manufacturing firms in maintaining competitiveness was emphasized. Finally, the study showed that market innovation has an impact on how well dairy manufacturing companies succeed. These companies performed better when they expanded their market by luring new clients with discounts and by using online marketing. Accordingly, the study draws the conclusion that market innovation can enhance the performance of dairy manufacturing companies since it has a favourable and significant impact on performance.

### 6.2. Recommendations

The results of the investigation of this study identified the type of Innovative Entrepreneurship that is applied and its effect on the dairy manufacturing sector in Zambia. However, the following recommendations were seen as necessary extensions and logical developments of the work carried out in this study in order to expand the understanding of the application and benefits of Innovative Entrepreneurship in the Zambian food processing and manufacturing industry

The dairy manufacturing firms could implement organizational innovation to improve staff creativity, customer service, teamwork, profits, and market share and the used of web marketing effectively could attract new clients. Furthermore, the dairy companies can enhance performance through process innovation, employing standardization, audits, and business standards.

In order to boost the performance of the food manufacturing industry in Zambia the government could provide Knowledge and Resource Adoption to the dairy food manufacturers, through government agencies organizing programs, establishing business incubators, connecting SMEs with educational institutions and specialists, and creating more research institutes. This comprehensive approach ensures access to knowledge and resources, fostering growth in the dairy industry and SME sector.

### 6.3. Recommendations for Future Studies

The scope of this investigation was the dairy processing businesses in Lusaka. It is suggested that future research should conduct comparable studies on every food production company in Zambia. Net profit and market share were used as performance indicators in this study. Other performance metrics, such as the number of employees, employee satisfaction, and customer satisfaction, should be studied in the future.

## REFERENCES

- 1) Abdulnasir, A. M., 2018. Research Gate. [Online] Available at: [https://www.researchgate.net/publication/326190494\\_Entrepreneurship\\_lecture\\_note#:~:text=%EF%83%BCAn%20entrepreneur%20is%20a%20person%20who%20establishes%20his%20own,leading%20role%20in%20an%20enterprise.](https://www.researchgate.net/publication/326190494_Entrepreneurship_lecture_note#:~:text=%EF%83%BCAn%20entrepreneur%20is%20a%20person%20who%20establishes%20his%20own,leading%20role%20in%20an%20enterprise.) [Accessed 11th March 2022].
- 2) ACF., 2012 Agricultural Consultative Forum; Performance and competitiveness of the dairy value chain in Zambia. Volume 1, issue #2.
- 3) Adam, S., Wim, N. & Micheline, G. e., 2011. Entrepreneurship, Innovation, and Economic Development: An Overview. Oxford Academic, 1 April.pp. 3-32.

## Exploring the Application of Entrepreneurial Innovation in Selected Food Processing (Dairy) and Manufacturing Firms in Lusaka

- 4) Adam, S., Wim, N. & Micheline, G., 2011. Entrepreneurship, Innovation, and Economic Development. Adam Szirmai, Wim Naude, and Micheline Goedhury ed. United States: Oxford University Press Inc., New York.
- 5) African Development Bank Group, 2020. Developing Africa's Workforce for the Future. [Online] [Accessed 17th March 2020].
- 6) Amoros, E. J., Bosma, N. & Levie, L. J., 2013. International Journal of Entrepreneurial Venturing. Ten years of Global Entrepreneurship Monitor: accomplishments and prospects , 5(2).
- 7) Areppim, 2020. Innovation Index Methodology, Switzerland: Areppim.
- 8) Atiase, Y. V., Mahmood, S. & Botchie, D., 2018. Journal of Small Business and Enterprise Development. Developing entrepreneurship in Africa: investigating critical resource challenges, 25(4).
- 9) Baumol, W. J., 1968. Entrepreneurship in Economic Theory. The American Economic Review, Volume 58, pp. 64-71.
- 10) Bedianashvili, G., 2017. The Institute for the Research. Formation of Knowledge Economy and Innovative Entrepreneurial Policy: Institutional Aspects, pp. 10-16.
- 11) Buttriss, J. L. (2013). Food reformulation: the challenges to the food industry. Proceedings of the Nutrition Society, 72(1), 61-69.
- 12) Christos, T., Carlos, M. P. S. & Karena, Y., 2017. Process Innovation: Open Innovation and the Moderating Role of the Motivation to Achieve Legitimacy: OPEN AND PROCESS INNOVATION. Journal of Product Innovation Management, Volume 35, p. 35.
- 13) Christos, T., Sousa, C. M. P. & Karena, Y., 2017. Process Innovation: Open Innovation and the Moderating Role of the Motivation to Achieve Legitimacy: OPEN AND PROCESS INNOVATION. [Online] Available at: [https://www.researchgate.net/publication/315064205\\_Process\\_Innovation\\_Open\\_Innovation\\_and\\_the\\_Moderating\\_Role\\_of\\_the\\_Motivation\\_to\\_Achieve\\_Legitimacy\\_OPEN\\_AND\\_PROCESS\\_INNOVATION](https://www.researchgate.net/publication/315064205_Process_Innovation_Open_Innovation_and_the_Moderating_Role_of_the_Motivation_to_Achieve_Legitimacy_OPEN_AND_PROCESS_INNOVATION) [Accessed 11th March 2022].
- 14) Collins, 2022. Definition of 'firm'. s.l.:Collins English Dictionary.
- 15) Crossan, M. M. & Marina, A., 2010. A Multi-Dimensional Framework of Organizational Innovation: A Systematic Review of the Literature. Journal of Management Studies , 47(6), pp. 1154-1191.
- 16) Dvouletý, O., Gordievskaya, A. & David Anthony, P., 2018. Investigating the relationship between entrepreneurship and regional development: case of developing countries. Journal of Global Entrepreneurship Research.
- 17) Dvouletý, O. & Mareš, J., 2016. Determinants of Regional Entrepreneurial Activity in the Czech Republic.. Economic Studies & Analyses / Acta VSFS., 10(1), pp. 31-46. 16.
- 18) Eurostat, 2013. Innovation activity. [Online] Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Innovation\\_activity#:~:text=Innovation%20activities%20are%20all%20scientific,to%20the%20implementation%20of%20innovations](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Innovation_activity#:~:text=Innovation%20activities%20are%20all%20scientific,to%20the%20implementation%20of%20innovations). [Accessed 12th March 2022].
- 19) FAO 2010 Status of and prospects for smallholder milk production: A global perspective, edited by Hemme T and Otte T. <http://www.fao.org/docrep/012/i1522e/i1522e0>.
- 20) Food and Drug Act 2001 The food and drugs act, chapter 303 of the laws of Zambia. Statutory instrument # 90 of 2001.
- 21) Frank, C., Ngao, M. & Dale, M., 2018. Industrial Policy in Context; Comparative Experiences from Chile and Zambia. Zambia Social Science Journal, Volume 7, pp. 2-3.
- 22) Freeman, C., 2008. Systems of Innovation. New York: Edward Elgar.
- 23) Global Competitiveness Report, 2018. Benchmarking Competitiveness in the Fourth Industrial Revolution: Introducing the Global Competitiveness Index , s.l.: World Economic Forum.
- 24) Habanabakize, T., Meyer, D. & Oláh, J., 2019. The Impact of Productivity, Investment and Real Wages on Employment. In: s.l.:Soc. Sci, pp. 8, 330.
- 25) Hamid, T. & Jabbari, M. M., 2012. Product Innovation Performance in Organization, Western New England University: Research Gate.
- 26) Harvey, M., Kate, B. & Huemann, M., 2017. Resarching Business and Management. 2nd ed. England: Palgrave.
- 27) Hearn1, J., 2018. American Sociological Association. How to Read The Wealth of Nations (or Why the Division of Labor Is More Important Than Competition in Adam Smith), Volume 36(2), p. 162 –184.
- 28) Hirect, 2022. Hirect. [Online] Available at: <https://www.hirect.in/blog/author/hirect/> [Accessed 4 September 2023].
- 29) IGI Global, 2022. What is Competitiveness. [Online] Available at: <https://www.igi-global.com/dictionary/information-strategy/38690> [Accessed 11th March 2022].
- 30) IGI Global, 2022. What is Technological Innovation, s.l.: IGI Global.

## Exploring the Application of Entrepreneurial Innovation in Selected Food Processing (Dairy) and Manufacturing Firms in Lusaka

- 31) Kuen-Hung, T. & Shu-yi, Y., 2013. Industrial Marketing Management. Firm innovativeness and business performance: The joint moderating effects of market turbulence and competition, 42(8), pp. 1279-1294.
- 32) Larsson, L., 2020. A Conceptual Framework for Production Innovation, s.l.: Printed by Luleå University of Technology, Graphic Production 2020.
- 33) Lindholm Dahlstrand, A. & Stevenson, L., 2010. Annual of Innovation and Entrepreneurship. Innovative entrepreneurship policy: linking innovation and entrepreneurship in Europe, 1(1).
- 34) Lusaka Times, 2017. Lusaka Times.Com. [Online] Available at: <https://www.lusakatimes.com/2017/12/19/economic-diversification-remains-key-poverty-reduction/> [Accessed 09 May 2020].
- 35) Marco, A. D. S. C. & Luiz, G. L., 2015. Xanthan gum: Properties, production conditions, quality and economic Perspective. Journal of food and nutrition research, June, 4(1), pp. 177-186.
- 36) Mary, K. P., 2015. Radical Innovation, s.l.: TechTarget.
- 37) Mauricio, C.-V., Issis, Q. & Poblete, J., 2021. Technological Innovation in the Food Industry: A Bibliometric Analysis. Engineering Economics, Volume 10.5755/j01.ee.32.3.26000, pp. 197-209.
- 38) Mehmet, A. D., 2016. Organizational Innovation, s.l.: Springer, Cham.
- 39) Mumba C, Samui K L, Pandey G S, Hang'ombe B M, Simuunza M, Tembo G and Muliokela S W 2011. Economic analysis of the viability of smallholder dairy farming in Zambia. Livestock Research for Rural Development. Volume 23, Article #137. <http://www.lrrd.org/lrrd23/6/mumb23137.html>.
- 40) Neil, K., 2017. Define Manufacturing Enterprise, s.l.: Leaf Group Ltd. / Leaf Group Media.
- 41) Neven D, Katjiuongua H, Adjosoediro I, Reardon T, Chuzu P, Tembo G and Ndiyoi M 2006 Food sector transformation and standards in Zambia: Smallholder farmer participation and growth in the dairy sector. Staff paper #18, pp 30.
- 42) NIBUSINESS INFO, 2023. NIBUSINESS INFO.CO.UK. [Online] Available at: <https://www.nibusinessinfo.co.uk/content/advantages-innovation> [Accessed 7th August 2023].
- 43) Nobuya, H., Charles, F. C. C. & Smeets, E., 2017. World Development. The Importance of Manufacturing in Economic Development: Has This Changed?, May, pp. 293-315.
- 44) OECD, 2005. Oslo Manual. In: Oslo Manual. Paris: OECD, p. 30.
- 45) Pai ZHENG, H. W. Z. S. R. Y. Z. Y. L. C. L. K. M. Y. X. X., 2018. Smart manufacturing systems for Industry. systems for Industry: Conceptualframework, scenarios, and future perspectives.
- 46) Paul, M., Coillard, H. & Kudu, C., 2020. Food Processing Sector, Investment Profile Zambia. Lusaka: International Trade Centre.
- 47) Rajapathirana, R. & Hui, Y., 2018. Relationship between innovation capability, innovation type, and firm performance. In: s.l.:J. Innov. Knowl, pp. 3, 44–55.
- 48) Rajitha, S. & Martha, V., 2013. Innovation Trends in the Food Industry: The Case of Functional Foods. Trends in Food Science and Technology, s.l.: Scientific Research Publishing Inc,
- 49) Ross, R. & Westgren, R., 2009. An agent-based model of entrepreneurial behavior in agri-food markets. In: C. J, ed. s.l.:Agric. Econ, p. 459–480.
- 50) Samantha, C. C., 2019. What is Incremental Innovation?, s.l.: Northeastern University Graduate Program.
- 51) Sander, W. & Ande'r Van, S., 2017. Types and Roles of Productive Entrepreneurship: A Concept Study. In: A. Gorkan, C. Tomas, K. Bailey & k. Tessa, eds. The Wiley Handbook of Entrepreneurship. s.l.: John Wiley & Sons, Ltd., pp. 37-69.
- 52) Schaltegger, S. & Wagner, M., 2011. In: . Sustainable entrepreneurship and sustainability innovation: Categories and interactions. s.l.:Bus. Strategy Environ, pp. 20, 222–237.
- 53) Schumpeter, J., 2000. Entrepreneurship as Innovation. In: U. Oxford, ed. In Entrepreneurship; . Swedberg, R., Ed: Oxford University Press:, p. 51–75.
- 54) ScienceDirect, 2014. A Research on Determining Innovation Factors for SMEs. s.l., Elsevier Ltd.
- 55) Sharon, P., 2020. Marketing innovation: a systematic review, s.l.: ResearchGate.
- 56) Ślędzik, K., 2013. Schumpeter's View on Innovation and Entrepreneurship.
- 57) Stevenson, L. & Dahlstrand, L. A., 2010. Innovative entrepreneurship policy: linking innovation and entrepreneurship in a European context, October.
- 58) Sulisty, H. & Ayuni, S., 2020. The roles of innovation capability, entrepreneurial. In: Competitive advantages of SMEs. s.l.:Contaduría y Adm, pp. 65, 156. .
- 59) Szabo, K. Z. & Herman, E., 2012. Innovative Entrepreneurship for Economic Development in EU. December.
- 60) Tadesse, G., & Gachango, F., (2022). Innovation in African Food Processing Enterprises: Patterns and Drivers.



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- 61) TechnoServe, 2017. TechnoServe. [Online] Available at: <chrome-extension://efaidnbmninnibpcapjchttps://www.technoserve.org/wp-content/uploads/2018/04/solutions-for-african-food-enterprises-final-report.pdf> [Accessed 4 September 2023].
- 62) The Economic Times, 2022. Definition of 'Market Share'. [Online] Available at: <https://economictimes.indiatimes.com/definition/market-share> [Accessed 12th March 2022].
- 63) The World Bank Annual Report, 2018. Open Knowledge Repository, s.l.: The World Bank Group.
- 64) Tidd, J. & Bessant, J., 2013. Learning to Manage Innovation. In: Managing Innovation: Integrating Technological, Market and Organisational Change. India: Wiley, pp. 84 - 85.
- 65) Timur, K. & Maziliauskas, A., 2017. The definition and classification of innovation, s.l.: Research Gate.
- 66) Tsarouhas, P. (2007). Implementation of total productive maintenance in food industry: a case study. Journal of Quality in Maintenance Engineering.
- 67) UNIDO, 2020. Industrial Diagnostic Study, Lusaka: Programme for Country Partnership.
- 68) United Nations Economic Commission for Europe, 2012. Fostering Innovative Entrepreneurship: Challenges and Policy Options, New York and Geneva: United Nation.
- 69) United Nations Economic Commission for Africa, 2013. Economic Report on Africa 2013: Making the Most of Africa's Commodities: Industrializing for Growth, Jobs and Economic Transformation, Addis Ababa: United Nations Economic Commission for Africa.
- 70) USAID, 2017. Food Processing in Sub-Saharan Africa, Washington: Techno Serve.
- 71) Wikipedia, 2022. Wikipedia. [Online] Available at: [https://en.wikipedia.org/wiki/Small\\_and\\_medium-sized\\_enterprises#:~:text=Small%20enterprises%3A%20to%20to%2049,enterprises%3A%20250%20employees%20or%20more](https://en.wikipedia.org/wiki/Small_and_medium-sized_enterprises#:~:text=Small%20enterprises%3A%20to%20to%2049,enterprises%3A%20250%20employees%20or%20more) [Accessed 12th March 2022].
- 72) World Development Indicators, 2018. data and statistics publication, s.l.: World Bank Group.
- 73) World Bank 2010 Jobs, prosperity and competitiveness: what would it take for the cattle industry to achieve its potential? A final report. Sponsored by World Bank, DFID and AfDB
- 74) Zambia Institute for Policy Analysis and Research, 2020. Macroeconomics, Lusaka: ZIPAR.
- 75) Zambia Tourism 2023, LUSAKA – CAPITAL OF ZAMBIA <https://www.zambiatourism.com/towns/lusaka/>



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