EXPLORING THE EFFECT OF ENTREPRENEURIAL ORIENTATION ON BUSINESS PERFORMANCE OF AGRICULTURE COOPERATIVES: A CASE OF SOLAR MILLING PLANT COOPERATIVES IN SOUTHERN PROVINCE OF ZAMBIA.

BY

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A Dissertation submitted to the University of Zambia in partial fulfilment of the requirements for the award of the Degree of Master of Science in Entrepreneurship and Innovation Management.

THE UNIVERSITY OF ZAMBIA

LUSAKA

2025

DECLARATION

I, **Godfrey M. Munyoro,** do hereby declare that this work is my original work achieved through personal reading and research. This work has never been submitted to the University of Zambia or any other Universities. All sources of data used and literature on related works previously done by others, used in the production of this Dissertation have been duly acknowledged. If any omission has been made, it is not by choice but by error.

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APPROVAL

This Dissertation by **Godfrey M. Munyoro** is approved as a partial fulfilment of the requirements for the award of the Degree of Master of Science in Entrepreneurship and Innovation Management

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ABSTRACT

The Solar Powered Milling Plants Project, a cornerstone of Zambia's Presidential Milling Initiative, was introduced to boost the economy and improve rural livelihoods by providing sustainable milling solutions. Despite substantial support from the government, stakeholders, and donor agencies, the performance of agricultural cooperatives especially in Zambia's Southern Province has remained suboptimal. With agriculture contributing only 2.74% to the country's GDP and cooperatives accounting for 12% of agricultural GDP, there is a clear gap between potential and realized impact, raising concerns about the effectiveness of these cooperatives in meeting economic and social objectives. This study examined the influence of entrepreneurial orientation (EO) on the business performance of solar milling cooperatives in Southern Province, aiming to uncover strategies to enhance their success. The research employed an embedded mixed-methods design, primarily focusing on quantitative data while incorporating qualitative insights. Data were gathered from 364 cooperative members using survey tools and semi-structured interviews. Convenience and purposive sampling techniques ensured targeted participant engagement, with 308 respondents forming the final analysis group. Among these respondents, 70.5% were female and 25.3% were male, reflecting the significant role of women in cooperative operations. The study revealed that EO dimensions, including innovation, proactiveness, and risk-taking, had a measurable and positive effect on cooperative business performance. A strong positive correlation ($p < 0.01$) was identified between EO and performance, suggesting that entrepreneurial practices could drive significant improvements in cooperative outcomes. Further, the study examined the interplay between internal and external business environments and cooperative performance. The findings demonstrated a robust positive relationship between these environments and performance, with a correlation coefficient of 0.947. Combined, internal and external factors explained 89.7% (R-Square: 0.897) of the variance in business performance, underscoring their critical role. Internally, cooperatives faced challenges related to operational costs, leadership capabilities, and technical skills, while externally, government policies, market accessibility, and raw material availability emerged as key influencers. The thematic analysis also highlighted that cooperatives capable of organizing their grain supplies and engaging in commercial milling achieved better financial results than those relying on toll milling. This finding emphasized the need for skill development programs, particularly in entrepreneurship and equipment repair, to enhance operational efficiency. The study concluded that EO, alongside both internal and external environmental factors, plays a pivotal role in determining the success of solar milling cooperatives. Key recommendations included fostering innovation, promoting entrepreneurial training, and addressing external barriers such as market access and policy restrictions. By strategically leveraging EO dimensions and improving their internal and external operational frameworks, cooperatives can enhance their financial performance and sustainability. This research contributes valuable insights into improving the efficiency and resilience of agricultural cooperatives, aligning with Zambia's broader goals of rural development, economic diversification, and food security.

Key words: *Entrepreneurial Orientation (EO), Agricultural Cooperatives, Business Performance, Internal Environment, External Environment.*

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DEDICATION

This research project is dedicated to my wife Kabuba and to my children Kudakwashe, Tashaya, Kapambwe-Anesu, Muyunda, Kudzanayi, Tinashe and Nyasha-Itayi for being by my side and for the motivation to pursue further studies. Above all, I dedicate it to God almighty for making it possible for me to complete this research.

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ABBREVIATIONS

BD: Business Development

CDB: China Development Bank

EO: Entrepreneurial Orientation

FISP: Farming Input Supply Programme

GDP: Gross Domestic Product

ICA: International Cooperative Alliance

MCTI: Ministry of Commerce, Trade and Industry

MSMED: Ministry of Small and Medium Enterprise Development

NDP: National Development Plan

NMRP: Net marginal revenue product

OECD: Organisation of Economic Co-operation and Development

SMP: Solar Milling Plant

ZCF: Zambia Co-operative Federation

CHAPTER 1

INTRODUCTION

1.1 Introduction

Chapter One provides an overview of the study, outlining its foundation, scope, and significance. It begins by presenting the background of the research, explaining the significance of entrepreneurial orientation (EO) and its relevance to the performance of solar milling cooperatives in Southern Province, Zambia. The chapter identifies the research problem, specifying the challenges that cooperatives face, such as internal inefficiencies, external barriers, and the need for strategic entrepreneurial approaches. It further outlines the objectives of the study, including the general objective of exploring the impact of EO on cooperative performance, as well as specific objectives focused on examining EO dimensions, determinants of business performance, and the influence of internal and external environments. The research questions that guide the investigation are also highlighted.

1.2 Background of the Study

A significant portion of Zambia's workforce 70%—was employed in the agricultural sector. Despite this, agriculture's contribution to the economy remains low, averaging less than 3% of the country's GDP. In 2019, agriculture accounted for just 2.74% of Zambia's GDP, while the industrial sector contributed approximately 42.12%, and the services sector about 50.03%. (O'Neill, 2021) Of the agricultural GDP, cooperatives generated around 12% (Yaluma, 2018). This falls short of the 10% target set by the Maputo Declaration. The Maputo Declaration (2003) and the Malabo Declaration (2014) by the African Union stress the need to accelerate agricultural growth and transformation for sustainable economic development and food security. This suggests that something crucial was either lacking or not being done correctly. Cooperatives are viewed as essential drivers of rural industrialization and development, an agenda emphasized in both the 7th and more recently the 8th National Development Plans, reflecting the government's clear intention and vision.

Cooperatives have long been recognized as significant contributors to the global economy (Munyenyembe, 2015); Yaluma, 2018; Kabwe, 2021). They are enterprises collectively owned and democratically managed by a group of members (Benos & Kalogeras, 2016). According

to the International Cooperative Alliance (ICA), a cooperative was defined as an autonomous association of individuals who voluntarily come together to fulfill their shared economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise. This definition emphasizes the distinctive characteristics of the cooperative model.

Globally, cooperatives have experienced varying levels of success, influenced by multiple factors, such as changing environments and market dynamics. While some have thrived, others have struggled to sustain themselves or remain active only in name. In Kenya, cooperatives contribute 40% to the country's GDP, illustrating the potential of the cooperative model when provided with the right conditions and support (O'Neill, 2021). In Zambia, cooperatives were initially established in 1914 by European settler farmers to market agricultural produce to the copper mines in Southern Zaire and Northern Zambia's Copperbelt (Munyenyembe, 2025); (Nkandu & Habazoka, 2023). With strong government support, the cooperative sector grew to become the third-largest employer after the government and the mining industry, and even becoming the second-largest contributor to GDP (ZCF, 2015).

However, policy changes in 1991 under a new government led to a significant decline in the cooperative movement, nearly causing its collapse. Challenges in adapting to the current business environment have persisted. Government initiatives like the Fertilizer Input Support Programme (FISP), which aimed to enhance food security for rural farmers, unintentionally weakened the cooperative sector. Many large cooperatives were divided into smaller units, as farmers sought greater access to subsidized inputs, turning most cooperatives into seasonal fertilizer cooperatives. Today, only about 6% of the approximately 60,000 registered cooperatives are considered active and performing (Munyenyembe, 2015; Yaluma, 2018). Nevertheless, the number of registered cooperatives has recently increased to about 110,000, with over 23,000 new cooperatives registered between September and December 2023 (MSMED, 2024).

In today's increasingly global and competitive environment, firms must continuously evolve and engage in entrepreneurial activities (Kantur, 2016) Therefore, it could be said for cooperatives to remain relevant and competitive, they need to embrace entrepreneurial strategies that emphasize creativity, innovation, and efficiency, aligning with private sector practices. Organizations that are willing to take risks, explore new opportunities, and prioritize

innovation have gained significant attention and success (ibid). Research suggests that entrepreneurial orientation (EO) was crucial for organizational success. However, the underperformance of active cooperatives has become a major concern for the government, stakeholders, and donors. The lack of entrepreneurial capabilities limits the ability to explore and exploit potential opportunities (Benos & Kalogeras, 2016). EO, described as a strategic framework encompassing a firm's decision-making practices, management philosophies, and entrepreneurial behaviors, has been extensively studied by scholars in the field of entrepreneurship over the past three decades. Historical evidence shows that cooperatives have the potential to be prominent players in the business world, as seen in various successful examples worldwide. In 38 OECD countries, the importance of focused interventions and collaborative efforts has been well recognized.

Solar milling plants have become a vital component of Zambia's agricultural cooperatives, addressing rural challenges by utilizing renewable energy for cost-effective maize milling. Despite agriculture employing 70% of the workforce, its contribution to GDP remains low at 2.74% as of 2019, compared to industry (42.12%) and services (50.03%) (O'Neill, 2021). Cooperatives, which generated about 12% of agricultural GDP, fall short of the Maputo Declaration's 10% growth target, indicating significant room for improvement (Yaluma, 2018). Solar milling aligns with Zambia's 7th and 8th National Development Plans, promoting rural industrialization and economic diversification. However, cooperatives face challenges such as high costs, limited technical expertise, and policy constraints, which restrict their productivity (Munyenyembe, 2015; Kabwe, 2021). The introduction of solar milling plants provides opportunities to enhance agricultural productivity, support food security, and empower rural communities, underscoring their potential to drive sustainable development (Nkandu & Haabazoka, 2024). However, cooperatives face persistent challenges, including high operational costs, limited technical expertise, and policy limitations, which hinder their overall performance. Solar milling plants offer significant potential to bolster the role of cooperatives in Zambia's economy

The entrepreneurship was more and more being mainstreamed in business interventions aimed at SME in the quest to bring sustainable development in business enterprise and rural economies. It has become invertible to therefore bring the entrepreneurial orientation to the fore in cooperative business development and promotion (Bijman, 2012). In entrepreneurship and strategic management research, entrepreneurial orientation has been found to have a

positive impact on firm performance (ibid). It was observed that firms with high levels of entrepreneurial orientation tend to constantly scan and monitor their operating environment in order to find new opportunities and strengthen their competitive positions (ibid). It was against this background that this study has been developed to explore the effect of entrepreneurial orientation on business performance of agriculture cooperatives in Southern province of Zambia

1.3 Statement of the problem

The Solar Powered Milling Plants Project, a central part of Zambia's Presidential Milling Initiative, was designed to strengthen the national economy and improve the livelihoods of rural communities (Yaluma, 2018). Despite significant investments from the government, donors, and stakeholders, agricultural cooperatives in Southern Province continue to face business performance challenges, limiting economic growth and rural development (Mason, Jayne, & Mofya-Mukuka, 2013). This was particularly concerning given agriculture's importance to Zambia's economy, contributing only 2.74% to national GDP (O'Neill, 2021), with cooperatives accounting for about 12% of the agricultural GDP (Yaluma, 2018). This figure remains below the 10% target set by the Maputo Declaration.

The Maputo Declaration (2003) committed African Union member states to allocate at least 10% of their national budgets to agriculture and rural development, while the Malabo Declaration (2014) reaffirmed this commitment and outlined further goals, such as boosting agricultural growth, improving productivity, enhancing food security, and reducing poverty. However, Zambia's current budget allocation for agriculture still falls short of this target. Addressing these issues requires integrating entrepreneurial orientation (EO) with the goals of the Maputo and Malabo Declarations and incorporating business development strategies from strategic management and entrepreneurship fields to improve cooperative business performance.

This study seeks to explore the effect of entrepreneurial orientation on the business performance of agricultural cooperatives, examining business performance indicators such as financial outcomes, operational efficiency, and social impact (Yaluma, 2018); (O'Neill, 2021). By assessing business performance data and drawing on relevant research, the study aims to

provide a comprehensive analysis of the challenges faced and propose strategies to enhance the effectiveness of cooperatives in Zambia's agricultural sector.

1. 4 Objectives of the Study

1.4.1 General Objective

To explore the effect of entrepreneurial orientation on business performance of agriculture cooperatives in Southern province of Zambia.

1.4.2 Specific Objectives

1. To identify the relationship of the key determinants of business performance on business performance of solar milling cooperatives in the Southern Province.
2. To determine the relationship of dimensions of entrepreneurial orientation (EO) that contribute to the business performance of solar milling cooperative enterprises in the Southern Province.
3. To establish the relationship between the internal and external business environment on the business performance of solar milling cooperatives in the Southern Province.

1.5 Research Questions

1. What was relationship between the identified determinants of business performance and business performance of solar milling cooperatives in the Southern Province?
2. What was the extent of the relationship between the dimensions of entrepreneurial orientation (EO) and the business performance of solar milling cooperative enterprises in the Southern Province?
3. How does the internal and external business environment relate to the business performance of solar milling cooperatives in the Southern Province?

1.6 Justification for the Study

Agriculture was a crucial sector in Zambia's economy, contributing 2.74% to the national GDP. Cooperatives are vital in supporting smallholder farmers, making up 12% of the agricultural GDP. However, they face ongoing challenges related to management, productivity, and financial performance. Improving the business performance of cooperatives was essential to

meeting the goals outlined in the African Union's Maputo Declaration (2003) and Malabo Declaration (2014), which emphasize the need for accelerated agricultural growth, enhanced productivity, and improved food security.

Aligned with the Malabo Declaration's emphasis on sustainable agricultural transformation, solar milling plants represent an opportunity to integrate renewable energy solutions. Exploring their business performance through the lens of entrepreneurial orientation could provide insights into how sustainable practices could be incorporated into traditional farming methods, supporting environmental sustainability. Entrepreneurial orientation, characterized by innovation, pro-activeness, and risk-taking, was key for cooperatives to boost their operational efficiency and competitiveness.

Thus, by examining these aspects, this study identifies effective practices and strategies for improving management, productivity, and profitability within cooperatives. The findings would offer guidance to policymakers on areas needing support to enhance agricultural cooperative business performance. This could lead to the development of policies that promote entrepreneurial activities and the adoption of sustainable technologies, consistent with the Maputo Declaration's goal of allocating 10% of national budgets to agriculture. Strengthening cooperative business performance through entrepreneurial orientation could improve farmers' resilience and livelihoods by offering better market access, pricing, and supply chain management.

Overall, this study contributes to academic discussions on entrepreneurial orientation in agriculture, providing empirical data and a basis for future research. It addresses key areas related to economic development, sustainability, policy, and academic inquiry, aligning with Zambia's national development goals, the Sustainable Development Goals (SDGs), and the African Union's Agenda 2063.

1.7 Significance of Study

The significance for this study was grounded in the important role that cooperatives play in Zambia's agricultural sector, contributing 12% to agricultural GDP. Improving cooperative business performance was crucial for driving economic growth, advancing rural development, and enhancing livelihoods, aligning with the African Union's Maputo Declaration (2003) and Malabo Declaration (2014), which underscore the need for accelerated agricultural growth, increased productivity, and better food security.

Despite considerable government investments, cooperatives in Zambia continue to face business performance challenges, which impede national economic goals. Gaining insights into how entrepreneurial orientation impacts cooperative business performance was critical for policymakers, cooperative managers, and stakeholders. The study's findings may offer practical recommendations for enhancing the viability, efficiency, and social impact of cooperatives, contributing to the achievement of the Sustainable Development Goals (SDGs) and the African Union's Agenda 2063. This research may also highlight strategic areas for resource allocation to maximize value, which was a shared objective for all stakeholders.

Additionally, the findings intend to enrich the existing body of knowledge on solar milling enterprises and inspire further research in this field. Finally, this study fulfills a partial requirement for obtaining a Master of Science degree in Entrepreneurship and Innovation Management from the University of Zambia.

1.8 Scope of the Study

This study was conducted in Southern Province and aims to explore the strategies agricultural cooperatives can employ, including the use of entrepreneurial orientation (EO) dimensions, business development, and the influence of internal and external environments, to enhance business performance in the agriculture sector. The research was limited to Southern Province and focused on agricultural cooperatives that have benefited from the "Presidential Initiative" solar milling plants project.

1.9 Hypothesis

1. Null Hypothesis (H0): There was no significant relationship between the identified determinants of business performance and the business performance of solar milling cooperatives in the Southern Province.

2. Alternative Hypothesis (HA): There was a significant relationship between the identified determinants of business performance and the business performance of solar milling cooperatives in the Southern Province.

3. Null Hypothesis (H0): There was no significant relationship between the dimensions of entrepreneurial orientation (EO) and the business performance of solar milling cooperative enterprises in the Southern Province.

4. Alternative Hypothesis (HA) There was a significant relationship between the dimensions of entrepreneurial orientation (EO) and the business performance of solar milling cooperative enterprises in the Southern Province.

5. Null Hypothesis (H0): There was no significant relationship between the internal and external business environment and the business performance of solar milling cooperatives in the Southern Province.

6. Alternative Hypothesis (HA): There was a significant relationship between the internal and external business environment and the business performance of solar milling cooperatives in the Southern Province.

1.10 Definition of key terms

1.10.1 Entrepreneurship

The definitions of entrepreneurship by most scholars tend to align with either the explorative or exploitative perception or explorative focus on the role and characteristics of individuals and teams or organisations, while the exploitative entrepreneurship focus was not on the characteristics and behaviour of the entrepreneur. However, rather on the function of entrepreneurship, whose aggregate outcomes take the form of economic growth and development as well as human welfare (Mungule, 2016). It further, defines entrepreneurship from the exploration perspective as the pursuit of opportunity beyond the resources you currently control and gives an elaborate definition of entrepreneurship as an activity that involves the discovery, evaluation and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes and raw materials, through organizing efforts that previously had not existed.

1.10.2 Business Development (BD)

Research shows that business development was defined differently depending upon the angle of research and BD was growing a business by making it more competitive, expanding products or services, and/or focusing on specific markets. In other words, business development was the practice of growing a business beyond its current state. There are three main components that

business experts generally agree form the base of business development: markets, customers, and relationships. Business development could hereby overarching be seen as the creation of long-term value for an organization and be expressed at business, commercial and organizational viewpoints (Kantur, 2016).

1.10.3 Entrepreneurial Orientation (EO)

Entrepreneurial orientation was initially defined by Miller as follows: "an entrepreneurial firm was one that engages in product-market innovation, undertakes somewhat risky ventures, and was first to come up with 'proactive' innovations, beating competitors to the punch" and suggested three dimensions to characterize and test entrepreneurship: innovativeness, pro-activeness, and risk-taking (Miller, 1983). Innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes. Risk-taking was defined as "the degree to which managers are willing to make large and risky resource commitments; those which have a reasonable chance of costly failures while pro-activeness is defined as seeking new opportunities which may or may not be related to the present line of operations, introduction of new products and brands ahead of competition, strategically eliminating operations which are in the mature or declining stages of the life cycle (Venkatraman, 1989).

It has been found in many different studies that EO has a positive effect on firm business performance. Many of these studies see EO as a singular construct. They indicate that EO has a similar effect on firm business performance in widely different contexts: in different countries, different markets and for different types of firms. The multidimensionality of EO may result in different relationships between these EO dimensions and firm business performance. This means that to fully understand the nature of EO-performance relationships, and to avoid misleading descriptive and normative theory building, we should consider the individual relationships between the different dimensions of EO and firm business performances and capture a crucial aspect of the way the enterprise was organized that enhances relationship between the ways in which enterprise combine and transform tangible resources and effectiveness. The entrepreneurial orientation has been found to be a key determinant of firm business performance no matter the approach to measurement, regardless using the managerial perceptions of firm level variable to explain process firm's behaviours indicated by the number of specific actions, or resources allocations to understand content (Lumpkin & Dess, 1996).

1.10.4 Cooperative

A cooperative was a unique business organisation. It was an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise (ibid). It was a voluntary association of a group of people who decide to work together for a common goal or purpose. Their operation was guided by cooperative principles, values and ethics. As they operate, they always endeavour to ensure that they maintain the cooperative identity. The owners of a cooperative are called members.

1.11 Summary

This chapter introduced the topic of entrepreneurial orientation (EO) and its effects on the business performance of agricultural cooperatives. It highlighted the significance of cooperatives in the global economy, particularly in Africa and Zambia. Despite commitments to allocate 10% of the budget to agriculture and rural development, Zambia still falls short of this target. To address this, the study aims to integrate EO with business development strategies to improve cooperative performance. The chapter defined key concepts, formulated a problem statement, and articulated specific research questions. It also outlined the scope of the study, focusing on agricultural cooperatives in Southern Province, Zambia, and established hypothetical assumptions and objectives to guide the research methodology.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The aim of this chapter was to review literature on the effect of entrepreneurial orientation on business performance of agriculture cooperatives; further, its core focus is on the global, regional and domestic studies conducted in line with entrepreneurial orientation on business performance of agriculture cooperatives. It begins with empirical studies conducted and supporting theories identified and explained to cement the understanding of entrepreneurial orientation on business performance of agriculture cooperatives in southern province of Zambia. Finally, out of the reviews above a conceptual framework was derived from the associations and interlinks in the variables of the study.

2.2 Overview of ZCF

The Zambia Cooperative Federation (ZCF) is the mother body for all cooperatives in Zambia. It was established under the Cooperative Law, number 20 of 1998 and operates independently with the mandate of coordinating the development, facilitating, and supporting various cooperatives in the country. As a cooperative organization representing the entire Zambian cooperative movement, the Zambia Cooperative Federation (ZCF) coordinates cooperative activities and acts as the "mouthpiece" of the cooperative movement. Finally, ZCF acts as a lobby for its members, especially when members need help from donors and/or when there are complaints about political issues. ZCF also serves as a source of education, training and information for its members. ZCF also assists its members in purchasing cheaper production inputs; to give them access to the market for their products; and facilitate members' access to various infrastructures such as warehouses. Second, it is possible that they can maintain high service quality by providing good products that meet customer expectations with good results and low losses. In this regard, the largest employers are government agencies and state institutions, with Zambia Copper Consolidated Mining (ZCCM) having been the second largest employer in the 1970s to 1990s.Those performance levels mean that the cooperative program's share of gross domestic product (GDP) is second only to ZCCM. The purpose of establishing first cooperative by white settlers was to help farmers organize the marketing of their products in copper mines in the Copper-belt and Katanga provinces. According to information, the

establishment of the first cooperative was for a commercial purpose for private sector projects to benefit from the large mining market. In order to organize and manage cooperatives, the government of the time enacted the "Cooperative Act". (ACT) and established the Department of Marketing and Cooperative (DMC) to regulate cooperatives. Statutory DMC was responsible for registration and management of cooperatives. At the time of re-independence in 1964, there were still 200 cooperatives and the new government began a strong campaign to promote the establishment of cooperatives to promote socio-economic development, especially in rural areas.

2.3 Overview of the ZCF Solar Milling Project

The Solar Powered Milling Project in Zambia was an important initiative because high quality maize flour was not available in most rural areas of Zambia. The demand for the staple food, high-quality maize flour, was due to the growth of the rural population in recent years. As the country's economy achieves some positive growth, rural people can afford quality maize flour, which increases demand. The government in 2015, took this initiative because the idea was to alleviate the challenges faced by rural communities and address rising prices of maize flour namely mealie meal and supply chain dynamics. These facilities ensured a continuous supply of maize flour from cooperatives and large communities in the area to local markets, which could lead to lower prices and availability of cheaper mealie meal. Therefore, it was created with the hope that by milling or milling using solar energy, the cooperative can save fuel costs and electricity, which can improve the economics of milling. Although affiliated to the Zambia Cooperative Federation, cooperatives are essentially independent self-help organizations managed and managed by members. The federation supports the education, training, information, marketing access, finance access, input access, brand development and advocacy of its members. When cooperatives enter into contracts with other organizations, partners or raise capital from outside, they do so on terms favourable to themselves and their members. Solar energy project can have a positive impact on rural communities by creating jobs for local people and improving food security through its byproducts. As part of its work, the cooperative management or committee manages the control and evaluation process of the cooperative and jointly establishes a business monitoring mechanism by agreement. They must be done for the sake of the local community, food security and the general well-being of society. Thanks to the cooperative's long-term success, solar power plant projects can always focus on sustainable development. This means that we must focus on providing resources to help cooperatives

operate effectively in their communities once they are established. Effective use of a solar mill system requires users to be educated and trained in safety, business management, maize production, and other issues that contribute to the operation of the cooperative. The purpose of the solar milling plant was to promote the economic activities of local residents and create one or two jobs for the local community. The intention was to set up Rural Enterprise Hubs (REH) or Growth Centres that would have water sanitation points, irrigation facilities, small businesses such as business centres, input suppliers and livestock production such as poultry and small livestock. Maize bran, a by-product of maize milling, was sold to poultry farmers and large producers. The installation of the solar energy system was essentially new technology being adopted by cooperatives. Aurinkovoima's production equipment was purchased from China with a loan from the China Development Bank, and a total of 1,571 machines were installed in all 10 provinces of Zambia at cost of US Dollars 200 million. This included eight service centres with warehouses, offices and training facilities. Solar Grinder milling plant was a complete system developed by Shandong and Beijing Bum International Engineering for Zambia and was the first of its kind. Providing affordable solar energy systems that enable appropriate grain/food processing methods that benefit smallholder farmers in rural Zambia. The equipment of the plant was located in rural areas where there was no electrical network (A El-Salam, 2019). This solar mill ensures the availability of edible maize flour from maize and other dry grains such as rice in Western Zambia. According to information, this solar power plant project is new and Zambia was one of the first countries to install solar power plants. The goal of the Solar Milling Program was to support the economic activities of local communities through the processing of products and was expected to create approximately 3,000 jobs for local residents. This was meant to ensure maize was processed and sent out of these high maize production areas as finished products leaving communities to benefit from the added income from value addition. Three different types of solar milling machines are being delivered to the Zambia Co-operative Federation (ZCF). A first-generation machine was delivered to Zambia for the first time. This machine was mechanical and has an 85-extraction rate. During contract milling, users always process the flour according to the following steps: 2. 40/125 x 100 = 32 kg of maize flour and the rest is maize bran. Three generations of maize flour machines have been installed in Zambia. First-generation machine (BMLM-1-00) uses 7.5 kW of power. Second generation solar milling machine (BMLM-2-00) manufactured by Beijing Bumu International Engineering Company in China. Another solar machine (BMLM-3-00) has additional functions. The second and third generation solar milling machine, can process 125 kg of maize flour per hour and consumes 3.3 kW of power. The second-generation solar milling

machines are a development of the first machines that use air and pneumatic systems to transport or move materials while the third-generation solar mill (BMLM-3-00) has an added feature of two splitters to help separate the particles.

2.4 Empirical Review

2.4.1 Determinants of Business Performance of Solar Milling Cooperatives

2.4.1.1 Global Perspective

Globally, the government policies and international market trends are instrumental in determining the success of solar milling cooperatives. Supportive policies that encourage renewable energy and sustainable agriculture are particularly beneficial, providing access to funding and attracting customers (Wolfram et al., 2014; Miller et al., 2012). However, the sector is not without its challenges, as volatile commodity prices and trade barriers can disrupt operations and profitability. The ability to understand and adapt to global market demands, as well as secure market access, is crucial for these cooperatives' longevity (FAO, 2016). In addition, access to affordable financing remains a critical factor in ensuring the sustainability and establishment of solar milling plants. Limited credit access acts as a significant hurdle to business growth and operations, emphasizing the importance of global financial frameworks and support mechanisms (Wolfram et al., 2014; Miller et al., 2012).

2.4.1.2 Regional Perspective

The business performance of solar milling cooperatives at the regional level is heavily influenced by access to modern technology, infrastructure, and skilled labor. In certain regions, limited technical expertise and outdated or inadequate equipment hinder operational efficiency, while poor infrastructure exacerbates difficulties in accessing markets (IRENA, 2015). Maintenance and the availability of spare parts for machinery further contribute to the overall success of operations, underscoring the need for reliable and high-quality technology in these plants (IRENA, 2015). Furthermore, regional cooperation and integration can enhance the market reach for cooperatives, helping them capitalize on shared resources and knowledge transfer. This collaboration has the potential to improve their competitiveness and resilience in the face of external pressures.

2.4.1.3 Local Perspective

Locally, the internal dynamics and strength of the cooperative itself are key determinants of business success. Factors like strong leadership, effective management, and a clear organizational vision play a pivotal role in fostering a thriving cooperative (Birchall, 2003). Transparent governance further enhances member participation and decision-making processes. The principle of self-help, as emphasized by Birchall (2003), is also vital for the capitalization of cooperatives. Building strong connections with local farmers and consumers is equally important for sustaining a loyal customer base. This sense of community involvement is bolstered by the creation of social and economic benefits, such as job creation and improved food security (ILO, 2015).

Moreover, the study by Zakaria et al. (2020) explores several factors such as intellectual capital, operating profit margins, and social and human capital. These elements are critical when analyzing governance practices within solar milling cooperatives. The study highlights that effective policy instruments like government incentives can further support these cooperatives.

Case Study Zambia's Solar Powered Milling Plants (SMPs**)** Chisi (2024) conducted a detailed study on the technical and economic performance of Zambia's Solar Powered Milling Plants (SMPs). The research revealed that operational factors like power requirements and adherence to standard operation times significantly impacted performance. For example, while all twelve sites in Zambia's Solwezi, Masaiti, Kapiri Mposhi, and Chikankata Districts required similar power levels (7.5 kW to 9.0 kW), only a few sites consistently maintained the standard 8-hour operation time. The location of these plants was primarily determined by their proximity to main roads and availability of land near Food Reserve Agency shades, highlighting the importance of accessibility and infrastructure in site selection (ZCF, 2019). While the project created employment opportunities, the revenues generated by these plants fell short of ensuring economic viability for loan repayment. The study thus recommended measures such as predictive and corrective maintenance and project management training to improve operational outcomes (Chisi, 2024).

In another researcher, Venter analysed the influence of entrepreneurial orientation on business success of selected South African SMEs (Venter, 2014). The result indicated a significant relationship between innovativeness and pro-activeness, while autonomy, risk-taking and competitive aggressiveness were insignificant. Duru, Ehidiamhen and Chijioke investigated

the role of entrepreneurial orientation on the performance of SMEs in FCT Abuja, Nigeria (Duru et al, 2012). The study found innovativeness to have a significant effect on SMEs while autonomy, pro-activeness and risk-taking were insignificant. Also, competitive aggressiveness was not demonstrated by SMEs in Abuja. Fairoz, Hirobumi and Tanaka examined the effect of entrepreneurial orientation and business performance of SMEs of Hanbantota district, Sri Lanka (Fairoz et al, 2010). The result revealed that risk-taking, innovativeness and pro-activeness were significant on business performance. Previous researches examining the effect of entrepreneurial orientation on firm performance provides mix findings. Most of the studies reviewed measured entrepreneurial orientation using three dimensions (innovativeness, risk-taking, pro-activeness). Therefore, this study explored the effect of entrepreneurial orientation using EO dimensions, business development, internal and external environment.

Munenyembe assessed the economic impact of the solar milling plants on the local people in Katete District, Zambia (Munyenyembe, 2015). The specific objectives were to assess the business performance of the solar milling plans, the effect of solar milling plants on mealie meal prices on the local market, the effect of solar milling plants on job creation in the district, and to find out challenges that co-operators are facing in managing the solar milling plants in the district for economic development, suggesting measures to be put in place to see to it that the program was sustainable. The research employed a qualitative research design, and extensive literature reviews were conducted in order to have a broader understanding of the research. The data was collected using the structured questionnaires and interview guide. The main findings of the research were that the hypothesis was rejected because there were no immediate economic benefits of the solar milling plants to the local people of Katete District. The study results revealed that the solar milling plants were under performing and underutilized in the district. Solar milling plants had no effect on the price of mealie meals in the district. Solar milling plants had a 40% effect on job creation in the district, and the study concluded that there were no immediate economic benefits brought about by solar milling plants in the district at the time of the study. Supportive policies and a conducive regulatory environment facilitate the growth of renewable energy projects and cooperative businesses (REN21, 2020). Efficient supply chain management, from sourcing raw materials to distributing finished products, was crucial (Gereffi & Fernandez-Stark, 2016). Factors that are essential for success are availability of roads, storage facilities, and reliable solar energy infrastructure support the operations of solar milling plants (IEA, 2017). Innovation and adaptability to market changes

are essential for staying competitive and meeting consumer needs according to (Schot & Steinmueller, 2018).

Additional research underscores the impact of entrepreneurial orientation on cooperative performance. For instance, Venter (2014) and Fairoz et al. (2010) identified innovativeness and proactiveness as significant factors influencing the success of small enterprises. However, findings remain mixed, as certain dimensions like autonomy, risk-taking, and competitive aggressiveness showed varying effects across different regions (Duru et al., 2012; Fairoz et al., 2010). All in all, the determinants of solar milling cooperatives' business performance are multifaceted, spanning global, regional, and local perspectives. Addressing challenges such as financing, technology access, and governance while capitalizing on opportunities like market integration and community involvement is essential for ensuring the long-term success of these cooperatives.

2.4.2 Dimensions of Entrepreneurial Orientation vs the Business Performance of Cooperative Enterprises

Entrepreneurial orientation (EO) has been widely studied as a key determinant of firm performance. Most empirical studies utilize the framework developed by Miller (1983) and extended by Covin and Slevin (1989), which focuses on the dimensions of innovativeness, pro-activeness, and risk-taking. These dimensions, while instrumental in driving firm performance, exhibit complex relationships with business outcomes, as demonstrated in various studies.

2.4.2.1 Global Perspective

Globally, studies have underscored the importance of the EO dimensions in enhancing business performance. Birech, Maroney, and Alang'o (2018) identified innovativeness, pro-activeness, and risk-taking as significantly influencing the performance of SMEs in Kenya. Similarly, Wambugu, Robert, and Kenneth (2016) revealed positive and statistically significant effects of these dimensions on the performance of agro-processing SMEs. However, the findings from other studies present nuanced insights. For instance, Prabin (2016) noted that autonomy significantly impacted the handicraft industry's business performance, whereas innovativeness, risk-taking, pro-activeness, and competitive aggressiveness were not significant contributors. This variation illustrates the potential contextual factors affecting EO's impact on performance.

2.4.2.2 Regional Perspective

In the context of regional markets, the relationship between EO and firm performance can vary significantly. Chinos and Maru (2015) found that while innovativeness and pro-activeness positively impacted firm performance in Kenya, risk-taking had a negative effect. The systematic review by Yang et al. (2023) further highlights the complexity of this relationship in international markets, suggesting that EO does not always guarantee improved performance. The review revealed an indirect relationship between EO and international performance (IP), emphasizing that different combinations of EO dimensions could yield diverse outcomes. This finding aligns with Covin and Wales' (2019) multidimensional perspective of EO, where the three dimensions are examined separately to capture their differential impacts on firm performance.

2.4.2.3 Local Perspective

Locally, cooperative enterprises often operate with resource constraints, requiring a strategic configuration of EO dimensions to avoid overextending their resources (Lumpkin & Dess, 1996). The configurational perspective, as proposed by Covin and Wales (2019), suggests that cooperatives should prioritize specific EO dimensions based on their strategic goals and environmental conditions. For example, Evanschitzky et al. (2012) demonstrated that the shared effects of innovativeness and pro-activeness could enhance firm performance, provided resources are efficiently allocated. However, EO is not without its challenges. The EO-as-experimentation view, proposed by Wiklund and Shepherd (2011), highlights the double-edged sword effect of EO, where high levels of entrepreneurial activity can lead to both success and failure. This is particularly relevant for cooperatives, as variability in innovation outcomes and the potential for failure from risk-taking can significantly impact their operations. Patel et al. (2015) emphasized that while risk-taking enables firms to capitalize on market opportunities, excessive risk-taking could threaten firm survival due to resource limitations.

2.4.3 Double-Edged Effect of EO Dimensions on Business Performance

The dimensions of EO-innovativeness, risk-taking, and pro-activeness—entail both opportunities and risks. Innovativeness fosters differentiation and adaptation to changing customer demands, potentially leading to superior performance (Gatignon & Xuereb, 1997;

Howell et al., 2005). However, the resource-intensive nature of innovation poses challenges, particularly for resource-constrained cooperatives (Van de Vrande et al., 2009). Similarly, risk-taking allows firms to explore new market opportunities but increases the probability of failure, especially at higher levels of risk-taking (Janney & Dess, 2006; Alvarez, 2007). Pro-activeness enables firms to stay ahead of market trends, but its benefits depend on the firm's ability to effectively implement proactive strategies.

Researchers have conceptualized EO in unidimensional and multidimensional frameworks. The unidimensional view aggregates all dimensions into one construct, emphasizing shared effects on performance (Rauch et al., 2009). In contrast, the multidimensional view examines each dimension independently, highlighting their unique contributions to firm outcomes (Kreiser et al., 2013). Increasingly, scholars advocate for a configurational approach to EO, considering the interplay of dimensions to understand their combined impact on performance (Lomberg et al., 2016). Thus, all while EO can contribute significantly to the business performance of cooperative enterprises, its dimensions must be strategically managed to balance potential gains against associated risks. The nuanced understanding of EO's multidimensional and configurational aspects offers valuable insights for cooperative enterprises seeking sustainable growth.

2.4.4 Impact of Internal Business Environment on the Business Performance of Solar Milling Cooperatives

2.4.4.1 Global Perspective

Globally, solar milling cooperatives exemplify a sustainable response to challenges in rural communities by leveraging renewable energy technologies to revolutionize traditional milling methods. Transparent decision-making processes and effective financial management are widely recognized as critical drivers of their success. However, universal challenges such as limited access to finance and a lack of technical expertise often constrain cooperative operations, particularly in developing countries. Similar trends were observed in Okundi's (2011) study of SACCOs in Kenya, where delays in loan disbursement and inadequate financial structures limited operational success. The concept of integrating solar milling into broader Rural Enterprise Hubs (REHs), as envisioned under Zambia Cooperative Federation (ZCF), aligns with global efforts to holistically support rural development through diverse activities

such as clean water sanitation and small-scale farming. Such multi-faceted approaches have become a global trend in promoting inclusive development and achieving sustainability goals.

2.4.4.2 Regional Perspective

Regionally, solar milling cooperatives face varying challenges influenced by localized economic and social dynamics. In sub-Saharan Africa, for instance, the success of cooperatives is tied to effective stakeholder collaboration. The introduction of the "one brand" concept under ZCF, which marketed cooperative products as "Co-op Milling" across Zambia, is an innovative approach that echoes regional strategies to improve market access and competitiveness. This unified branding enhanced cooperative penetration into supermarkets, schools, and hospitals, creating shared market opportunities for cooperatives within the region. However, challenges such as loan repayment structures, as highlighted in the ZCF case, remain significant barriers. The repayment issues echo findings from Okundi's (2011) research, which recommended restructuring loan recovery mechanisms to reduce financial strain and support cooperative sustainability across regional contexts.

2.4.4.3 Local Perspective

Locally, the internal environment of solar milling cooperatives is deeply influenced by management practices, cultural attitudes, and community engagement. Strong organizational cultures that emphasize collaboration, innovation, and stakeholder partnerships are fundamental for cooperative success. For instance, cooperatives in Zambia that engaged in commercial milling and packaging under the "Co-op Milling" brand demonstrated stronger financial stability and the ability to manage loan repayments. In contrast, cooperatives focused on toll milling faced greater financial challenges due to lower revenue generation. Local stakeholder engagement, including partnerships with community groups and local governments, has been critical in addressing these challenges. The need for tailored interventions, such as revising loan repayment structures and offering targeted financial and technical training, has been highlighted as essential for supporting local cooperatives in achieving their objectives.

2.4.5 Influence of the External Business Environment on the Performance of Solar Milling Cooperatives

The external business environment plays a powerful role in shaping the performance of organizations, including solar milling cooperatives. As argued by Biaga, Sibiu, and Balcescu (2016), the dynamics of external forces—be they political, economic, social, or technological—can disrupt operations and affect the communities these organizations serve. This mutual relationship means that while cooperatives influence their environment through their products and services, the surrounding environment also affects their growth and efficiency. To adapt, managers must make strategic decisions that consider these interdependencies, as failure to do so could jeopardize competitiveness.

Akpoviroro's (2018) research on frozen fish companies in Nigeria similarly highlights the profound impact of external factors. This study, which relied on survey data from three companies, concluded that political, economic, technological, and socio-cultural conditions directly influence organizational performance. Such findings have significant implications for solar milling cooperatives. By understanding these external elements, cooperatives can better identify opportunities (such as tapping into emerging markets) and mitigate threats (like navigating trade restrictions or economic instability).

For solar milling cooperatives, political stability and supportive policies could foster better market access and funding opportunities. Conversely, adverse political climates or fluctuating economic conditions could hinder operations. Technological advancements and socio-cultural shifts also present both challenges and opportunities. Whether it's embracing cutting-edge solar milling equipment or understanding local consumer behavior, cooperatives that adapt to external changes are better positioned for success.

Ultimately, the external environment demands continuous analysis and adaptability to ensure solar milling cooperatives can thrive amidst shifting conditions while delivering value to the communities they serve. Below are the External factors, such as political, economic, technological, and socio-cultural influences, play a pivotal role in shaping the operational efficiency and overall performance of solar milling cooperatives.

2.4.5.1 Economic Environment

Segbua in his write up stressed much on the overall health of the economic system in which many organizations operate (Segbua, 2002). Ogundele says that was vital concern to an organization. He further posits that the economic environment goes a long way to determine and define the opportunities for an organization; this was because an expanding economy provides operational scope for the organizational existence as well as for the establishment of new ones (Ogundele 2005). However, a period of recession could bring about failures and probably liquidation of the organization, moreover during liquidity trap it could collapse the organization structure.

Nevertheless, the important economic factors which affect many businesses are inflation, interest rates and unemployment. Griffin (1997) emphasized on the overall health of the economic system in which many organizations operate. The important economic factors, which affect many businesses, are inflation, interest rates and unemployment. This view is further supported by a report by IMF, (2018) that stressed that economic factors such as inflation, currency stability, and price volatility of raw materials, affect the business environment for cooperatives. In order to recover such money, companies raise price of their product and the consumer demand would fall because they would be unwilling to pay more on a product. When there was high rate of unemployment, the company becomes selective in the recruitment of personnel and this could cause low production, which eventually makes the company to lose its customer's demand.

The economic situation in Zambia at some point has been hinted to be unfavourable for business activities. This could be true to some extent but the fact was that the present economic status of the country has some hope for the conduct of business. Dollar due to the importations of some capital goods are left in the hands of particular individuals; it still has a fair day on the common businessman. As earlier highlighted some economic factors affecting the Zambia business environment include economic growth, interest rates, exchange rates and the inflation rate. These factors have major impacts on how businesses operate and make decisions. For example, interest rates affect a firms cost of capital and therefore the extent to which a business grows and expands, (Otokiti 2005). Dollar exchange rates affect the costs of exporting goods and the supply and price of imported goods in an economy according to (Ogundele 2015).

2.4.5.2 Political Environment

Ongeti observed that political factors are the government regulations on business political instability has ramification on planning, for example no organization want to set up business in another country where the trade relationship are not relatively defined and stable (Ongeti 2014). A good instance was June 12, 1993 crisis marked by announcement of state of emergency in Zambia that really affected many organizations due to political instability in Africa and Zambia at the local level. Legal system defined what an organization should or not to do according to (Murgor 2014). Okeyo points out that the implication of political environment to a business enterprise was that the risk emanating from it was a measure of likelihood that political events may complicate its pursuit of earnings through direct impacts (such as taxes or fees) or indirect impacts (such as opportunity cost forgone) (Okeyo 2014).

2.4.5.3 Technological Environment

Technology was understood as the systematic application of scientific or other organized knowledge to practical tasks. Technology changes fast and to keep pace with it. Businessmen should be ever alert to adopt changed technology in their business. The adoption of mobile money has been impactful for small and medium business (SMEs). Research shows that the use of mobile money has enhanced the resilience of SMEs, especially during crises like the COVID -19 pandemic, improving sales and access to finance. SMEs using mobile money were less likely to suffer from catastrophic sales drops compared to non-users Hassan, (2023). The Zambia government was actively working towards a digital future by investing in digital infrastructure and creating policies to foster technological adoption. These initiatives aim to improve access to digital services, enhance financial inclusion and support innovation through tech hubs and research investments according to (Mutati 2021). Despite the positive impacts, there are still challenges to overcome, such as digital literacy, affordability, and equitable access to technology, particularly in the rural areas. Addressing these issues was crucial for ensuring that the benefits of digital transformation are widespread and inclusive. Overall, technology adoption has potential to significantly transform Zambia's economy by enhancing productivity, enabling better decision-making through data analytics and fostering innovation across sectors.

2.4.5.4 Social and Culture Environment

It refers to people's attitude to work and wealth, role of family, marriage, religion and education (Tacheva, 2007). The social environment of business includes social factors like customs, tradition, values, beliefs, poverty, literacy, life expectancy rate etc. Ajonbadi stressed that the social structure and the values that a society cherishes have a considerable influence on the functioning of business firms (Ajonbadi 2017). For example, during festive seasons there is an increase in the demand for new clothes, sweets, fruits, flower etc. Due to increase in literacy rate the consumers are becoming more conscious of the quality of the products. Due to change in family composition more nuclear families with single child concepts have come up. This increases the demand for the different types of household goods. It may be noted that the consumption patterns, the dressing and living styles of people belonging to different social structures and culture vary significantly. Zambia was a nation with diverse cultures and with a multi-ethnic background. These connotations have their own spell on the activities that go on in the Zambian business environment. These are the social and cultural aspects and include health consciousness, population growth rate, age distribution, career attitudes and emphasis on safety nets. Trends in social factors affect the demand for a company's products and how that company operates. There are many strong factors which ensure a successful business in the country and abroad. Furthermore, social considerations include protecting the health and safety of the general population, avoiding harm to the natural environment, developing and deploying ethical standards and practices, meeting cultural and social norms, balancing interest of the business with the interests of the society, and being a proactive entity. The culture of a people would go a long way to influence the kind and pattern of business activities to engage in hence the impact of culture on the Zambia business environment. The culture in riverine areas may permit the trading of fish and other sea or river products. This was not the case of north where the culture makes way for the cultivation or trading of farm produces such as yam, garlic.

2.4.5.5 Natural Environment

Business an economic pursuit of man continues to be dictated by nature. To what extent business depends on nature and what was the relationship between the two constitutes an interesting study (Kobia 2006). The natural environment includes geographical and ecological factors that influence the business operations. These factors include the availability of natural resources, weather and climatic condition, location aspect, top a geographical factor etc.

Business is greatly influence by the nature of natural environment. For example, sugar factories are set up only at those places where sugarcane can be grown. It was always considered better to establish manufacturing unit near the sources of input. Also, government's policies maintain ecological balance, conservation responsibility on the business sector (Shaikh, 2010).

2.4.5.6 Ethical and Demographic Environment

This includes customers, moral, values, rules, and demographically characteristics of the society in which the organization function. Ethical behaviour process was important because it determines the product, services and the level of conduct that the society was likely to get it allows for a cordial relationship between management, workers and their customers. Oyebanji said that behaviour are interwoven with each other and it was difficult to distinguish individuals and their behaviour, that the attitude of individuals differs in work habit, risk taking, introducing or accepting challenges, assess the level of authority, material again (Oyebanji 1994). Ethical heritage manifest itself in certain behavioural patterns being observed in business operation. Furthermore, these factors shave direct bearing on the demand for agricultural products for instance a country where population rates are high and children constitute a large section of population, then there was more demand for baby food products. But on the other hand, the large workforce or population makes the conduct of business to be very tight. This was so because there would be too many sellers or service providers in the environment and this would affect the conduct of business in the Zambia environment.

2.4.5.7 Legal Environment

According to Adeoye legal environment consist of laws, regulations that improvement in the enabling environment leads to greater levels of investment by the private sector, more wealth, job creation and ultimately more poverty reduction (Adeoye 2012). Government passes regulations on industries, this has considerable effect and impacts on business the regulatory being set up by government to prevent the public from certain business practice and, according to Adeoye (ibid), legal environment consists of the laws regulations and procedures of a country which SMEs are anticipated to comply with in the course of their operations. These laws may facilitate successful business conduct as well as constitute handicaps to successful performance. Furthermore, in carrying out their business operations, Agro business, enterprises are required by law to pay taxes, value added tax, capital gain tax, education tax, council levies, import duties, excise duties among others. A case in point was where in Zambia the new Cooperative bill has been under review for past 16 years. This has disadvantaged the

cooperative movement as it could help to guide and build a framework in which cooperatives can thrive and growth.

2.5 Concepts of Entrepreneurial Orientation

Entrepreneurial orientation (EO) has received significant attention in entrepreneurship research, with a growing body of knowledge on the relationship between EO and business performance (Kantur, 2016) An EO firm was defined as one that engages in technological innovation (innovativeness), takes on risky ventures (risk-taking), and proactively pursues opportunities (pro-activeness) (Venkatraman, 1989) . Miller being the first author of entrepreneurial orientation identified entrepreneurship for three entrepreneurial activities, namely innovation, proactive action and risk taking, and stated that firms that showed these activities had an entrepreneurial relationship (Miller, 1983). However, he proposed in his definition what was to become the foundation of the entrepreneurial orientation approach, later adopted by Covin and Slevin (Covin & Slevin, 1991): 'An entrepreneurial firm was one that engages in product market innovation, undertakes somewhat risky ventures, and was first to come up with "proactive" innovations, beating competitors to the punch' (1983, p 771). Consequently, non-entrepreneurial firms are defined in opposite terms: 'A non-entrepreneurial firm was one that innovates very little, was highly risk averse, and imitates the moves of competitors instead of leading the way'. Entrepreneurial management (EM), on the other hand, posits that entrepreneurial firms are driven by opportunities, seize them regardless of available resources, and are willing to rent these resources if necessary (Guulruh & Sinema, 2009) However, Cools and Van den Broeck (2007/2008) postulate that entrepreneurial orientation (EO) refers to the top management's strategy in relation to innovativeness, pro-activeness, and risk taking. Firms develop supporting mechanisms such as organizational structure, culture, and people to achieve these objectives. The dimensions of EM include strategic orientation, commitment to opportunity and resources, control of resources, management structure, reward philosophy, growth orientation, and entrepreneurial culture (Guulruh & Sinema, 2009).

The relationship between EO, EM, and firm performance has been a focal point in previous studies that highlight the positive implications of entrepreneurial processes on firm growth (Bijman, 2012). Miller notes that majority of entrepreneurial orientation research (EO) was directed to examine the performance of an organisation (Miller 2011). However, research on entrepreneurship in developing countries like Zambia has predominantly focused on small firms or individual entrepreneurship (Benos & Kalogeras, 2016). It was important to recognize

that large firms face distinct challenges compared to small firms due to their different organizational designs and management styles (Benos & Kalogeras, 2016).

Most researchers have focused on measuring different entrepreneurial dimensions as could be observed in table (Solikahan & Mohammad, 2019). These dimensions particularly innovativeness, risk-taking and pro-activeness have been widely utilised in research to measure and analyse entrepreneurial orientation and its impact on business performance, as they collectively describe an organization's overall entrepreneurial posture. The table further, provides input on dimension measurements frequently analysed and highlighted by different authors or researchers. In order, to appreciate the EO and its impact on firm performance it was significant to bring in authors from the archives on the richness of this topic and what has been contributed over the years.

2.5.1 Dimensions of Entrepreneurial Orientation

The majority of researchers have identified and used three-dimension constructs of EO namely innovativeness, pro-activeness and risk-taking. However, in the recent past researchers have been increasing brought to the fore two variables competitive aggressiveness and autonomy. (For example. Lumpkin and Dess, 1996; Hair et al., 2014; Mason et al., 2015; Fadda, 2018). In essence, EO constricts consist of five dimensions: innovativeness, pro-activeness, pro-activeness, risk-taking, competitive aggressiveness and autonomy (Lumpkin & Dess, 1996); (Dess and Lumpkin, 2005).Two additional constricts, have been added by researchers (Lumpkin & Dess, 2001); (Mason et al., 2015; Felicio, et al., 2012); (Covin & Slevin, 2014) bringing the dimensions to seven namely competitive energy and growth orientation.

Therefore, the past research studies have laid the foundation on which measurement of EO constructs can be done. These are:

2.5.1.1 Innovativeness

Innovativeness according to Lumpkin & Dess and Schumpeter involves the firm's attitude to developing the innovative processes that often lead to new products, new services and technological discoveries (Lumpkin & Dess, 1996) and (Schumpeter, 1934). In addition, innovation was driving most firms than ever before to become achievers as it offers competitive advantage. It was further noted, Short et al that innovation was often elucidated simply as cornerstone of entrepreneurship (Short et al 2018). In addition, Lumpkin and Dess refer

innovativeness as willingness to support creativity and experimentation in introducing new products/services, and novelty, technological leadership and R & D in developing new processes (Lumpkin & Dess, 2001). Innovativeness could also be professed to lead to strategic renovations or improving the existing products, processes, or systems (Hair et al., 2014; Gloss et al., 2019). Covin and Slevin refer this dimension to a firm's tendency to engage in and support new ideas, novelty, experimentation and creative processes that may result in new products, services, or technologies to foster innovation within the organisation (Covin and Slevin 1989).

2.5.1.2 Pro-activeness

Pro-activeness characterises the firm's ability to anticipate market changes, particularly customer trends, this relates directly with firm's proactive orientation to size market opportunities. Proactive companies are said to be trend settlers and never in the followers group. According to Otokiti (2013), pro-activeness is defined as the implementation and follow-up action by which the entrepreneur should have the capacity to control any situation before causing negatives rather than waiting for the response. Advance prediction of possible events to problems should be part of entrepreneur's character, should be ready with possible remedial actions, and seeking an innovative solution to achieve predetermined goals. Alayo et al gave an insight that pro-activeness represents a future viewpoint, predicting changes and opportunities in the organization, exploring future market trends, encouraging development in tactics (Alayo et al. (2019). Alshezawi & Khan demonstrated that a proactive company could identify potential emerging problems and find solutions (Alshezawi & Khan 2018). However, Covin and Slevin indicated that this pro-activeness reflects a forward-looking perspective, characterized by the anticipation and acting on future needs and changes in the market (Covin and Slevin 1989). It involves being first to market with new products or services and actively shaping the competitive landscape rather than reacting to it.

2.5.1.3 Risk Taking

Risk taking deals with firm's inclination to undertake risky activities with uncertain implications (Knight, 1921), such as exposure to debts and risky investments (Lumpkin & Dess, 1996). Kurtulmus & Warner refers to risk taking to courage and ability to channelize investments and efforts in uncertain domains in order to capitalise on exponential returns possibilities in terms of gains (Kurtulmus & Warner 2015). Risk behaviour have been concentrated in entrepreneurial activities because the benefits of opportunities in the market,

trying new things, the distinction of the company from its competitors always involves some risk (Sherperd et al 2010); (Thomas 2013). It was further argued that risk was not only a feature of entrepreneurial companies; it was also an individual tendency towards risk when one tries to implement the idea of business despite low opportunities for success or investment in companies with very high profits and losses (Soedarmono et al.2019); (Hair et al.2014). Covin and Slevin sheds more light on risk-taking as being a firm's wiliness to commit significant resources to opportunities with a reasonable chance of costly failure (Covin and Slevin 2014). It highlights the propensity to take bold actions, such as entering unknown markets or investing heavily in uncertain ventures.

2.5.1.4 Competitive Aggressiveness

Edward, Ketchen and Short defined competitive aggressiveness as the tendency to intensely and directly challenge competitors rather than trying to avoid them (Edward, Ketchen and Short 2014). It was further underlined that aggressive moves can include price-cutting and increasing spending on marketing, quality, and production capacity. Aggressiveness could improve its competitiveness over its competitors as the organization's performance would increase clarification as construed by (Gal 2018).

Despite aggression being viewed as most treasured attributes for an entrepreneur previous studies confirmed that such aggressiveness is necessary to any firm in order to undermine its competitors and to create a competitive advantage that will let a firm expand its market share. Too much aggressiveness on the hand can undermine an organization's success. A small firm that attacks larger rivals, for example, may find itself on the losing end of a price war. According to Edwards, Ketchen and Short that establishing a reputation for competitive aggressiveness can damage a firm's chances of being invited to join collaborative efforts such as joint ventures and alliances (Edwards, Ketchen and Short 2014). One of Nike past mission statements 'To experience the emotion of competition, winning, and crushing competitors' highlights its aggressiveness to its competitors that could backfire if it's a SME. This approach for most SMEs is considered unsuitable behaviour due to cost and their limited resources coupled with the cultural differences (Akinbola, Orunnaike, and Amaihan, 2015).

2.5.1.5 Autonomy

Simply put is the tendency to bring forth ideas and see them through to completion. Lumpkin and Dess, defined autonomy as being linked to the independent action of an individual or a

team in bringing forth an idea or a vision and carrying it through to completion (Lumpkin & Dess, 1996). In addition, autonomy means self-governing or self-rule and comes from a Greek word meaning independent. Otokiti articulated that employees can influence the strategic decision process if they are allowed to have the autonomy to a certain level, with the independent action (Otokiti 2013). This then follows, that employees will be motivated to perform at their best level and can share and implement their views and ideas on behalf the company. Autonomy can be said to be the foundation of functionality, intentionality and meaning. It therefore follows, according to Alexe and Alexe, that autonomy helps the firm and the team creating and using independent work units to increase the volume of Innovative solutions and ideas to solve problems (Alexe and Alexe 2018).

2.5.1.6 Competitive Energy

Competitive energy reflects the intensity of the companies' efforts to overcome their rivals in the industry, characterized by a combative stance and a vigorous response to the actions of competitors (Felico et al 2012), (Mason et al 2015).

2.5.1.7 Growth Orientation

The commitment to expanding the business and pursuing opportunities for increased scale. This is defined from a number of perspectives. Lumpkin examines how growth orientation, along with innovativeness, influences firm performance, considering environmental and industry factors (Lumpkin & Dess, 2001). According to Covin and Slevin, growth orientation is a key dimension of entrepreneurial behaviour in firms (Covin & Slevin, 1991). Further, Covin and Miller discuss growth orientation as a critical factor for global firms engaging in international entrepreneurship (CovinJ & Miller, 2014). It is also considered as a relationship between entrepreneurial orientation (including growth orientation) and performance in small businesses (Wiklund & Shepherd, 2005).

2.5.2 Cooperative Business Performance

A Cooperative (organizational) performance was a multidimensional construct that requires a separate discussion of its dimensions. Organizational performance was recognized as a multidimensional construct, and for this study, specific dimensions of interest would be explored under the sections of entrepreneurial orientation (EO) and cooperative performance. Each EO factor would be discussed as separate subsections, highlighting its relevance to

performance. Additionally, the influence of the cooperative's sector and location on the relationship between EO and performance would be examined.

The location of the cooperative positively moderates the relationship between EO and venture performance. Firms located in larger cities are more innovative, proactive, competitive, and autonomous compared to firms established in regional towns. This could be attributed to the high competition in larger cities, which encourages firms to innovate in terms of new ways of doing things, technology adoption, and the production of new products. Larger cities also offer more opportunities to explore new markets (Bijman, 2012). Firms in larger cities, due to the potential returns associated with risk, tend to be more autonomous and willing to take risks. In general, firms involved in the manufacturing sector and adopting a strong EO tend to perform better compared to their counterparts. Additionally, firms located in larger cities that embrace EO experience greater growth compared to enterprises established in regional towns (Venkatraman, 1989). Specifically, ventures in larger cities tend to outperform ventures in regional towns due to the better practice of EO in larger cities. Firms in larger cities have better access to imported technologies, allowing them to introduce new products/services, administrative techniques, and operating technologies before their regional town counterparts. Furthermore, larger cities have a higher number of product/service users and competitors, prompting firms to differentiate themselves with new models, designs, and products to excel in the competitive landscape. On the other hand, most managers of small ventures in regional towns are reluctant to distribute power and provide autonomy to their workers, limiting their ability to take calculated risks compared to venture managers in larger cities (Bijman, 2012). This disparity in autonomy and risk-taking leads to more frequent exploration of new products and ideas among ventures in larger cities, contributing to their better growth compared to ventures in regional towns. Additionally, firms operating in the capital city demonstrate a higher level of innovation in products, technologies, and markets compared to firms in regional towns, as they could learn from larger ventures present in urban areas (Benos & Kalogeras, 2016). The absence of independence and freedom in regional towns hampers the generation of new ideas, which are crucial for the success of firms in these areas.

Regarding the control variables, it has been found that younger firms tend to perform well and grow towards the next level more effectively than older firms. Moreover, firms with a larger number of workers tend to exhibit better growth. Therefore, innovative firms involved in the manufacturing sector are expected to perform better compared to their counterparts. Similarly,

innovative firms located in larger cities are expected to demonstrate superior performance compared to firms in regional towns (Venkatraman, 1989) (Benos & Kalogeras, 2016). Entrepreneurs are described as innovators and this has been supported by the work of (O'Neill, 2021), EO is evidenced through visible entrepreneurial tendencies toward innovativeness, pro-activeness and risk taking and operationalized these three constructs and see them as central to EO.

2.6 Knowledge Gaps

Research on the impact of Entrepreneurial Orientation (EO) on agricultural cooperative business performance in Sub-Saharan Africa, was limited and in Zambia there was no documented evidence. Existing studies lack theoretical integration, contextual understanding, and empirical evidence on the relationship between EO and cooperative business performance. Gaps also exist in methodology, geographical, and conceptual clarity, highlighting the need for longitudinal, mixed-methods studies and context-specific EO frameworks. Addressing these gaps provides valuable insights into enhancing the business performance of agricultural cooperatives, such as solar milling plant cooperatives, in Southern Province, Zambia.

2.7 Summary

The chapter delved into the existing literature on the topics of entrepreneurial orientation and firm business performance to provide a rationale for the gap identified by the study and its subsequent exploration. It included a comprehensive discussion of the definitions of entrepreneurial orientation and traced the evolution of the entrepreneurial orientation construct, drawing from the viewpoints presented by its proponents and opponents in the entrepreneurial orientation research space

Generally an understanding of entrepreneurial orientation from early research as well as recent definitions was researched. Most studies found that there are several key factors that could make or break the success of these cooperatives. Key determinants of business performance pave way in enhancing the understanding of various factors that had influence on business performance The researcher attempted to define entrepreneurial orientation and other related definitions by bringing a premised view. This view would help to further discuss and choose a methodology for the research in question. The chapter also introduced how most empirical studies on entrepreneurial orientation utilized the instrument developed by researchers These studies highlighted and brought to the fore different relationships and interaction that exist between a number dimensions of entrepreneurial orientation and their impact on firm business performance. From the most commonly used and illustrated innovativeness, pro-activeness and

risk-taking with more recent constructs autonomy, aggressive competitiveness, competitive energy and growth orientation.

CHAPTER 3

THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 Introduction

The theoretical and conceptual framework provides the foundation of this study, offering a structured approach to understanding how Entrepreneurial Orientation (EO) influences the performance of solar milling cooperatives in Southern Province, Zambia. This framework serves as a pathway that guides the research process, ensuring that findings are firmly grounded in existing knowledge and theory.

The theoretical framework was anchored on two key theories: Dynamic Capabilities Theory (DCT) and Entrepreneurship Theory (ET). These theories explain how EO dimensions enable organizations to adapt to changing environments, optimize their resources, and achieve strategic goals. The conceptual framework connects these theoretical constructs to the specific context of solar milling cooperatives, highlighting the relationship between EO dimensions, internal and external business environment factors, and cooperative performance.

3.2 Theoretical Framework

Dynamic Capabilities Theory (DCT)

Dynamic capability was about organizational competitive survival rather resource based view's achievement of sustainable competitive advantage (Teece et al., 1994). Dynamic capability theory explains the capacity of an organization to purposefully create, extend or modify its resource base which refers to the choice of strategy an organization adopts to achieve its goals

Dynamic Capabilities Theory (DCT) complements Resource Base View Theory (RBT) by emphasizing the importance of adaptability and flexibility in dynamic environments (Ibid). Cooperatives operating in rapidly changing markets must develop dynamic capabilities such as absorptive capacity, innovation, and learning to stay competitive. DCT helps explain how EO enables cooperatives to reconfigure resources and capabilities to respond to environmental shifts.

Entrepreneurship Theory (ET)

Entrepreneurship theory encompasses various perspectives that explain the entrepreneurial process, behavior, and characteristics of entrepreneurs (Knight, 1921; Gartner, 1989). Key components include opportunity recognition, risk-taking, innovation, pro-activeness, and autonomy. Major theories include Trait Theory, Behavioral Theory, Cognitive Theory, Social Learning Theory, and Resource-Based View (Mitchell et al., 2002) Entrepreneurship theory draws from diverse disciplines, including psychology, sociology, economics, and management, to understand how entrepreneurs create, innovate, and grow businesses. By examining entrepreneurial cognition, motivation, and action, entrepreneurship theory provides insights into the complex process of venture creation and growth, informing practice, policy, and future research. Entrepreneurship Theory (ET) adds another critical dimension by highlighting the entrepreneurial mindset and behavior that underpin EO (Drucker, 1985). ET emphasizes the importance of opportunity recognition, risk-taking, and innovation in driving cooperative performance. By examining the entrepreneurial characteristics of cooperative managers and members, researchers can gain insights into how EO influences performance outcomes.

The integrated framework offers several benefits. Firstly, it enhances understanding of EO's effects on cooperative performance by identifying key resources, capabilities, and entrepreneurial characteristics. Secondly, it provides practical recommendations for cooperative managers and policymakers seeking to improve performance through EO. Finally, the framework informs strategies for developing dynamic capabilities and fostering an entrepreneurial culture within cooperatives. From a methodological perspective, researchers can employ survey or case study designs to collect data from cooperative managers and members. Statistical analysis techniques such as regression and structural equation modeling can be used to examine the relationships between EO, resources, capabilities, and performance outcomes. By exploring these research questions, the study can contribute to a deeper understanding of EO's impact on cooperative business performance and inform evidence-based decision-making. All in all, the integration of DCT, and ET offers a powerful framework for understanding the complex relationships between EO, resources, capabilities, and cooperative business performance.

3.3 Conceptual Framework

According to Bogdan and Biklen (2003) a conceptual Framework was a basic structure that consists of certain abstract blocks which represent the observational, the experiential and the analytical/synthetically aspects of a process or system being conceived. The interconnection of

these blocks completes the framework for certain expected outcomes. This conceptual framework was designed to assist cooperatives running solar milling plants in Southern Province of Zambia to adopt and implement strategies to increase their market share and grow into viable industrious businesses. It employs comprehensive strategies, the framework would help the cooperatives address issues related to failure of cooperative to use solar milling plants to increase their market share, social and economic impact of solar milling plants on communities and reasons for lack of strategies to drive cooperatives to increase their market share. The framework show the relationship between independent variable and its influence on the dependent variables makes it possible to find answers to the research problem represented in form of a model known as a conceptual framework (Sekaran, 2009). In this study, the independent variables are: that entrepreneurial orientation in all dimensions (innovativeness, pro-activeness, risk taking, and aggressiveness), and likewise with business performance (perspective: financial, customers, internal business processes, learning and growth) illustrates dependent variables (Figure 3.1: Proposed conceptual Framework).

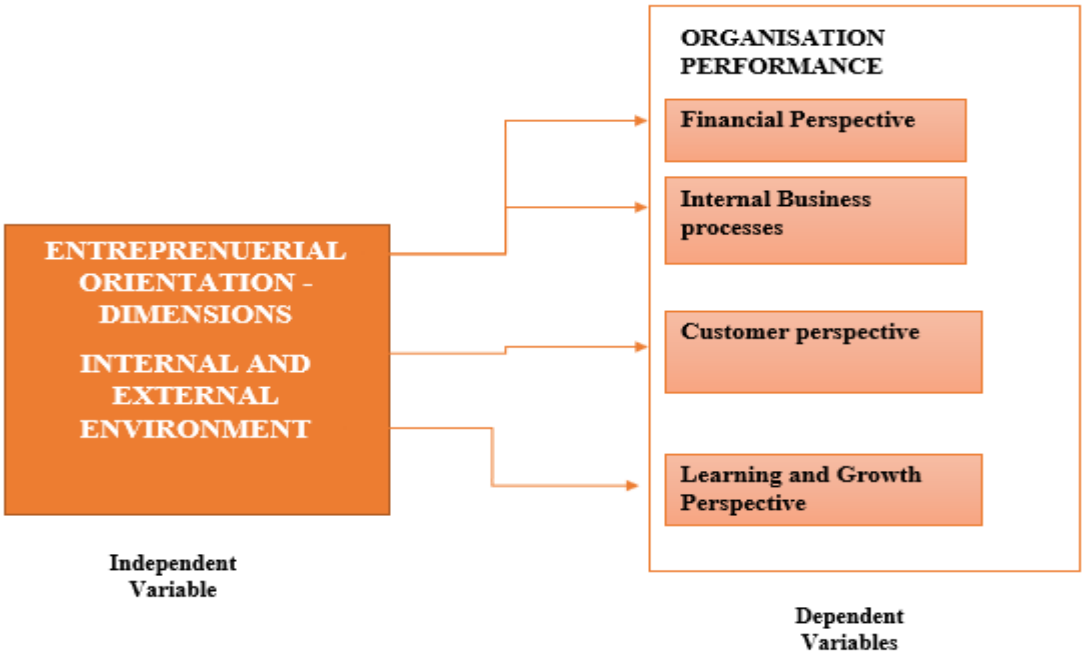

Figure 3. 1 Conceptual Framework of the Research

3.4 Operationalisation of Variables

Operationalization of variables refers to the process of defining and measuring variables in a way that they can be empirically observed and assessed. It involves specifying how abstract concepts are translated into measurable indicators or metrics for analysis. This ensures clarity,

consistency, and replicability in research. Here's an example of how variables are operationalized:

Dependent Variable:

Business Performance of Cooperatives: Measured using metrics such as revenue growth, profitability, market share, customer satisfaction scores, and operational efficiency.

Independent Variables:

Entrepreneurial Orientation Dimensions:

Innovation: Number of new products introduced, adoption of new technologies, or investments in research and development.

Risk-Taking: Percentage of budget allocated to high-risk projects or willingness to invest in new ventures.

Proactiveness: Rate of market expansion activities or number of new customer acquisitions.

Competitiveness: Market position relative to competitors and price competitiveness.

Adaptability: Frequency of diversification efforts or responsiveness to market changes.

Control Variables:

Demographics: Age and size of the cooperative, years of operation, or member composition (e.g., gender representation).

External Environment: Market accessibility, government policies, availability of resources, and socio-economic conditions.

Internal Factors: Leadership capabilities (assessed through governance and strategic decision-making).

Operational costs (measured as a percentage of total revenue) and

Technical expertise (evaluated through the frequency and impact of training programs)

3.5 Summary

This chapter integrated Dynamic Capabilities Theory (DCT) and Entrepreneurship Theory (ET) into the theoretical and conceptual framework, providing insights into the entrepreneurial traits, adaptability, and resource optimization strategies necessary for cooperative success. DCT explained how solar milling cooperatives adapted to dynamic markets by reconfiguring resources and capabilities, highlighting flexibility, innovation, and learning. ET underscored entrepreneurial traits like proactiveness, innovation, and risk-taking that drove decision-making and performance, connecting EO dimensions to organizational behavior. The chapter connected these theories to the study's objectives, demonstrating their relevance in examining cooperative performance. The theoretical framework provided a robust lens for analyzing how EO dimensions and environmental factors interacted to influence success, while the conceptual framework bridged theoretical constructs to the research context, ensuring focus and coherence.

CHAPTER 4

METHODOLOGY

4.1 Introduction

This chapter presents the research design and methodology. It outlines all the activities that were undertaken in this study from the selection of study setting; target population and sample size determination and the sampling techniques. It further explains the instruments of data collection and software to be used in data analysis.

4.2 Research Philosophy

This study adopted the philosophy of pragmatist. Pragmatic philosophical assumptions in research emphasize practicality, flexibility, and problem-solving (Morgan, 2014). Pragmatism was a philosophical approach that focuses on the practical application of knowledge and the importance of context in shaping research outcomes (Morgan, 2014; Richardson, 1994). This study aim was to explore the effect of entrepreneurial orientation on the business performance of agriculture cooperatives, a practical problem that needs solutions. And since Pragmatism emphasizes the importance of context, which was crucial in understanding the specific challenges and opportunities faced by agriculture cooperatives in Southern of Zambia, pragmatic approach was the best fit for this study (Ibid). Pragmatism offer flexibility in research design and methods, enabling researcher to adapt to the complex and dynamic nature of agriculture cooperatives. Pragmatism values multiple perspectives, enabling the researcher to consider various stakeholders' views, such as cooperative leaders, cooperative managers, cooperatives members and policymakers. Pragmatism accommodates embedded mixed-methods research, allowing researcher to combine quantitative and qualitative data to gain a comprehensive in-depth understanding of the research topic. By adopting a pragmatic philosophy, this study provided valuable insights and practical recommendations for enhancing the business performance of agriculture cooperatives in Southern Zambia, ultimately contributing to the improvement of the agricultural sector in the region.

4.3 Research Design and Approach

This study adopted an embedded mixed method research design. A mixed method approach combines both qualitative and quantitative research methods to achieve a more comprehensive understanding of a research topic (Creswell, 2014). In embedded mixed method approach focus on quantitative data but also includes a smaller embedded qualitative data to enhance explain,

or clarify the quantitative findings. Both qualitative and quantitative data are collected simultaneously to achieve a more complete understanding of the research topic (Teddlie and Tashakkori, 2009). The embedded mixed methods allows the researcher to gain a more complete understanding, depth and context of the effect of entrepreneurial orientation on agriculture cooperatives' business performance by combining quantitative and qualitative data it provides insights numbers might not review. By using multiple methods, the researcher can use triangulation in the findings to increasing the validity and reliability of your results (Creswell, 2014). This approach enables the researcher to explore qualitative aspects (e.g., stakeholders' perceptions, experiences) and confirm quantitative findings (e.g., statistical analysis of business performance data). By using an embedded mixed-methods approach, the researcher leveraged the strengths of both qualitative and quantitative methods to provide a more comprehensive understanding of the research topic and provided practical recommendations for agriculture cooperatives in Southern, Zambia.

The study used triangulation method of mixed study design. Triangulation was a research methodology technique used to increase the validity and reliability of research findings by combining multiple research methods, data sources, or investigators (Saunders, 1994). The goal of triangulation was to confirm or validate findings by identifying convergent themes, patterns, or results across different methods or data sources (Ibid). The study involves combining multiple data sources, such as surveys, interviews, and observations as well as combining multiple research methods, such as qualitative and quantitative methods. Advantages of Triangulation is that it increases the reliability and validity of findings by confirming results across multiple methods or data sources (Cresswell, 2014). Additionally, Triangulation provides a more comprehensive understanding of the research phenomenon. The main limitation of this method was that triangulation can increase the complexity of the research design and analysis (Saunders, 1994; Mugenda, 2012). All in all, this design and approach enabled the researcher to explore the entrepreneurial orientation and business performance of solar milling plant cooperatives in-depth, while also generalizing findings to a larger population.

4.4 Target Population and Sample Sizes

The target population for this study are members of the agriculture cooperative under ZCF operating from Southern Province. According to the Zambia Cooperative Federation (ZCF, 2019), Southern province has 266 agriculture cooperatives, which benefited from the solar milling plant initiative with an average of 15 member per cooperative. This implies that that the total target population for this study

would be 3,990. It was also important to note that selection of population sample was key. (Gschu, 2004) underscores the importance of selecting a representative sample through making a sampling frame. From the population frame the required number of respondents were selected in order to make a sample and the ideal technique used was stratified random sampling. To establish the sample size the researcher used Yamane equation. The formula takes into consideration the margin of error, the 95% confidence level, the population and the response distribution (Precision) (Yamane, 1967).

4.5 Sample Sizes Determination

4.5.1 Determination of Qualitative Sample Size

A sample size of 15 participants was used to provide rich and meaningful data for qualitative analysis supported by Creswell (2022), who argued that 15 to 35 participants purposeful sampled are sufficient for qualitative studies that involve in-depth questionnaires. This selection ensured diverse range of perspectives and experiences. A sample size of 15 has been chosen owing to the sensitive nature of the study which may make study participants limited to be accessed. This sample size was large enough to achieve saturation. Saturation in qualitative research was determined by the point at which no new information was being discovered (Thomas, 2015). In this study the criteria and indicators was used to determine when saturation was reached in the study "Exploring the effect of EO on the business performance of cooperatives" The sample of 15 was justified due to the emergence of repetitive themes and patterns across different data sources indicates that saturation may have been reached, observing stable trends in the data without significant variation suggests that further data collection may yield diminishing returns and when data analysis no longer reveals new themes or insights, it was an indicator that saturation has been achieved (Ibid).

4.5.2 Determination of Quantitative Sample Size

The sample sizes for each population category and for each district (Stratum) was determined using the Yamane Formula Model. The determination of the sample size using Yamane sample determination Model was done as follows;

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

Where n required sample size

N the total population

e margin of error used was estimated at 5% or 0.05

Where:

N =3990

n =?

e =5%

Calculations below give both the targeted populations and their associated sample sizes based on Yamane Formula. Yamane Formula Model can generate a sample size for any size of the population which could be in form of even or old number though it uses a fixed margin of error which is 5%.

$$n = \frac{3990}{1+3990(0.05)^2}$$

$$n = \frac{3990}{1 + 9.975}$$

$$n = \frac{3990}{10.975} = 363.55$$

n =364 sample size

4.6 Sampling Techniques

4.6.1Qualitative Sampling Techniques

The study used purposive sampling techniques to sample out participants for qualitative data collection. A purposive sample was a non-probability sample that was selected based on characteristics of a population and the objective of the study (Sleeper, 2001). Purposive sampling was also known as judgmental or subjective sampling and Snow ball sampling. The study used purposive sampling due to the freedom it grants the researcher to use their own judgement when sampling the population which enables the researcher to excessively save time and resources. The study used purposive sampling to subjectively sample only staff members working in cooperatives that benefited from the solar milling plants. These evidence-based staff members are also in a better position to guide with records and communicate to would be staffs, teach them an articulate and reflective manner (Spradley, 1979; Bernard, 2002). The research journey involves the researcher identifying individuals or groups of individuals who are willing to participate and communicate the experience or opinion in an expressive and efficient manner understood by all. (Cresswell & Plano Clark, 2011. Furthermore, the study applied purposive sampling in order to subjectively select information rich cases that were

available and easily accessible during the time of the study. The study ensured that the participant selection reflects the diversity of the participants from various cooperatives in terms of age, gender, experience, and geographical location. Where possible, used random sampling methods to select participants to minimize selection bias was applied.

Convenience Sampling (Availability)

Availability sampling techniques was ideal in that it relied on data collection from population members of the cooperative group available to participate in the study. Their information was key to this study especially sales records co-operatives document for decision making purposes. A good group such as the availability could be practical as they provided ideal situation, they deal with mills on a daily basis by managing the business of the milling plant. (Sedgwick, 2013; Etikan et al, 2016) Gives the researcher the confidence when analyzing sales trends of the cooperative business for a certain period to understand cash flow process and production lines.

Purposive sampling Cooperative Leadership

Purposive sampling, also known as judgmental sampling, was a type of non-probability sampling that involves selecting participants based on their expertise, experience, or other relevant criteria. In this study purposeful sampling technique was adopted since it could be useful in collecting qualitative data from cooperative staffs living within the vicinity of the milling plant and also because they observe, knowledge they possess in running the business and the experience in selling of mealie meal bags produced, that was on how many days it took to sell mealie meal produced. (Proctor et al, 2009; Patton, 2002, Cresswell & Plano Clark, 2011). These evidence-based leadership members are also in a better position to guide with records and communicate to would be leaders, teach them an articulate and reflective manner (Spradley, 1979; Bernard, 2002). The research journey involves the researcher identifying individuals or groups of individuals who were willing to participate and communicate the experience or opinion in an expressive and efficient manner understood by all. (Cresswell & Plano Clark, 2011). While purposive sampling could be effective in achieving specific research goals, it could also be prone to biasness. Here are some ways to overcome biasness in purposive sampling: Use of multiple sources (multipurpose agriculture cooperatives that benefited from solar milling plants) were sampled, triangulation, establish clear inclusion criteria, use a diverse sample. Ensured data saturation was achieved, and conduct member checking (Marshall, 1996; Creswell, 2014; Patton, 2002; Lincoln & Guba, 1985). Therefore, by triangulating the study

sample, setting clear criteria, selecting diverse participants, reaching data saturation, and verifying findings with participants, the study was able to minimize bias and ensure the reliability of results (Ibid).

4.6.2 Quantitative Sampling Techniques

For broader representation and to ensure that evidence-based leaders' members are also in a better position to guide with records and communicate to would be leaders, teach them an articulate and reflective manner (Spradley, 1979; Bernard, 2002). The research journey involved the researcher identifying individuals or groups of individuals who are willing to participate and communicate the experience or opinion in an expressive and efficient manner understood by all. (Cresswell & Plano Clark, 2011), stratified sampling was an effective method. Stratified sampling involved dividing the population into subgroups or strata based on certain characteristics relevant to the research objectives, such as position, location and years of experience (Cresswell, 2004). Then, a random sample was drawn from each stratum, ensuring that all segments of the population are represented in the sample. This method enhances the accuracy of the results and allows for a more detailed analysis of subgroups within the population. By doing so, the study ensured that the sample reflects the diversity of the market traders, which is essential for understanding the financial literacy levels across different trading demographics. Simple random technique was applied to reduce researcher biasness in the selection the target sample and collection of the research data (Ibid).

4.7 Data Collection and Procedure

The data type to be collected was predominantly primary in nature and both quantitative and qualitative.

4.7.1 Qualitative Data Collection Instruments

For Qualitative data collection the researcher used structured interview guide. A structured interview guide which contained a series of open-ended questions. A structured interview schedule has the advantage of presenting questions in sequence. It standardizes the research instruments and equally removes the chances of the respondent tele-guiding the researcher (Creswell, 1994). The researcher used open ended questions.

4.7.2 Quantitative Data Collection Instruments

Questionnaires was the main research instrument that was used in this study. The fixed choice and open-ended formats of the item was used in developing the questionnaire items. All questionnaire categories adopted this format. Additionally, the quantitative data was collected

using Likert Scaled self-administered questionnaires and for qualitative data, interview guide was used. The fixed choice items involved proposing answers to the respondents especially so as to eliminate the tendency to over think. Thus, by providing an alternative that also provided less self-expression opportunities.

4.7.3 Measurement Instrument

In order to measure the constructs of interest in this study, appropriate measurement instruments need to be selected. The specific measurement instruments depended on the variables being studied, such as entrepreneurial orientation (EO) and cooperative business performance. Here are some commonly used measurement instruments for these constructs:

1. **Entrepreneurial Orientation (EO):**
    - Miller's EO Scale: This scale assesses the dimensions of innovativeness, pro-activeness, and risk-taking, which are central to entrepreneurial orientation (Miller, 1983).
    - Lumpkin and Dess EO Scale: This scale measures the dimensions of innovativeness, pro-activeness, and risk-taking, and includes additional items for autonomy and competitive aggressiveness (Lumpkin & Dess, 1996).

Cooperative business performance:

- Balanced Scorecard: The balanced scorecard approach can be used to measure multiple dimensions of organizational performance, such as financial performance, customer satisfaction, internal processes, and learning and growth (Kaplan & Norton, 1996).
- Key Performance Indicators (KPIs): KPIs are specific metrics that are aligned with the strategic goals of the cooperative and provide a quantifiable measure of performance in areas such as sales, profitability, productivity, customer retention, and employee satisfaction.

4.8 Reliability and Validity

Reliability refers to the consistency and stability of measurement. It indicates the degree to which a research instrument or measurement technique produces consistent results over time or across different conditions. High reliability indicates that the instrument was dependable and produces consistent results when used repeatedly (Bryman, 2016). In the context of this study, ensuring the reliability of data collection instruments, such as surveys or questionnaires, would be important to obtain consistent and reliable data.

Validity, on the other hand, refers to the accuracy and appropriateness of the inferences and conclusions drawn from the research. It assesses whether the research instrument actually measures what it intends to measure. There are different types of validity, including content validity, construct validity, and criterion validity (Bryman, 2016). Triangulation was used increases the reliability and validity of findings by confirming results across multiple methods or data sources (Saunders, 1994). Thus, in this study, it will be crucial to establish the validity of the measurement tools used to assess entrepreneurial orientation, cooperative performance, and other relevant variables to ensure that they accurately capture the intended constructs.

4.9 Data Analysis

Collected data was compiled, summarized and analysed using Statistical Package for Social Sciences researches (SPSS) version 27. SPSS in this research was used because it is user friendly in that it is easy to compute frequencies and present the computed data in different graphical forms such as frequency tables, histograms, pie charts, and so forth. Qualitative data was analysed by grouping the responses into common themes, and analysed thematically with respect to the analysis of open-ended questions.

4.10 Ethical Consideration

Ethical issues were considered when conducting this study. The researcher obtained ethical approval from UNZA Ethical Committee. Before the collection of data permission was also sought for the case study from Management of ZCF. Prior to that permission was sought from the Executive of the Provincial Co-operative union before administering of questionnaires. For purposes of confidentiality, respondents' names were omitted in the presentation and analysis of data.

4.11 Summary

This chapter explored the philosophies, methodologies, strategies, and approaches relevant to the research.

In this chapter, this study adopted the philosophy of pragmatist. Pragmatic philosophical assumptions in research emphasize practicality, flexibility, and problem-solving. Pragmatism was a philosophical approach that focuses on the practical application of knowledge and the importance of context in shaping research outcomes. The aim of this study was to explore the effect of entrepreneurial orientation on the business performance of agriculture cooperatives, a practical problem that needed solutions. And since Pragmatism emphasizes the importance of

context, which was crucial in understanding the specific challenges and opportunities faced by agriculture cooperatives in Southern Zambia, pragmatic approach was the best fit for this study

The chapter examined and adopted an embedded mixed method approach. A mixed method approach combines both qualitative and quantitative research methods to achieve a more comprehensive understanding of a research topic In embedded mixed method approach focus on quantitative data but also includes a smaller embedded qualitative data to enhance explain, or clarify the quantitative findings. Both qualitative and quantitative data was collected simultaneously to achieve a more complete understanding of the research topic. The embedded mixed methods allowed the researcher to gain a more complete understanding, depth and context of the effect of entrepreneurial orientation on agriculture cooperatives' business performance by combining quantitative and qualitative data it provided insights numbers might not review. The data brought out themes that further enriched the quality of quantitative data. By using multiple methods, the researcher used triangulation in the findings to increasing the validity and reliability of your results

In this research, collected data was compiled, summarized and analysed using Statistical Package for Social Sciences researches (SPSS) version 27. Ethical issues were considered when conducting this study.

CHAPTER 5

SUMMARY OF FINDINGS

5.1 Introduction

In order to demonstrate on the results and its findings, this section demonstrates the answers based on the research questions (David, 2000). David advises researchers using case study methods to use themes aimed at exploring the effect of entrepreneurial orientation on business performance of agriculture cooperatives in Southern province of Zambia. Data presentation and analysis has been presented according the objectives, as such the following are the themes standing;

- Key determinants of business performance for solar milling cooperatives in the Southern Province of Zambia.
- Dimensions of entrepreneurial orientation (EO) that contribute to the business performance of solar milling cooperative enterprises in the Southern Province of Zambia.
- The relationship between the internal and external business environment on the business performance of solar milling cooperatives in the Southern Province of Zambia.

5.2 Response rate

The targeted sample consisted of 364 respondents. However, due to unforeseen circumstance the researcher managed to collect and analyse on 308 whilst 56 were not returned to irregularities and errors. Thus, out of 364 respondents, only 308 of sampled questionnaires were completed and analysed giving a response rate of 84.6% where by 15.4 % of the respondents did not finish the questionnaire. The response rate above 60% is regarded as excellent, therefore, the response rate of 84.6% if excellent for this study

Table 5.2 1 -- Return of Questionnaire

Item	Frequency	Percentage
Returned and found usable	308	84.6
Not returned	56	15.4
Total	**364**	**100**

Source: Field Data, 2024

5 .3 Demographic Information

5.3.1 Distribution of the respondents by Location

The study revealed that majority of the respondents 36.7% were from Kalomo, 20.1% from Kazungula, 8.10% from Gweembe, 16.20% from Namwala, 8.10% from Monze, 10% from Choma, 0.30% from Zimba district.

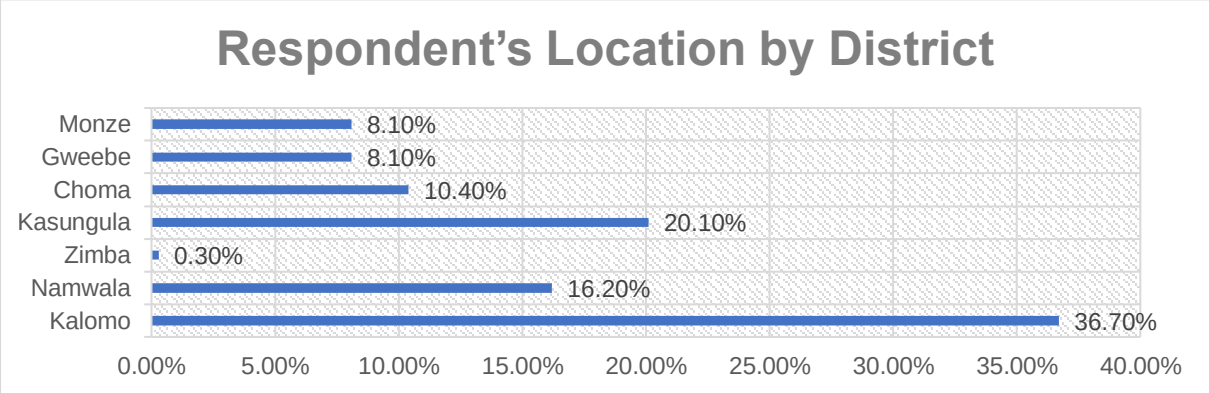

Figure 5.3. 1 – Distribution of the respondents by Location

5.3.2 Position of the respondents

The researcher was also interested in knowing the position of the respondents in the represented cooperative. The results shows that majority 63.3% were cooperative members just, 16.3% were cooperative treasurers, 10.4% were in the cooperative chairperson bracket and 10.1% were cooperative secretaries. This shows that the study was well represented almost in all categories and had access.to custodians of data.

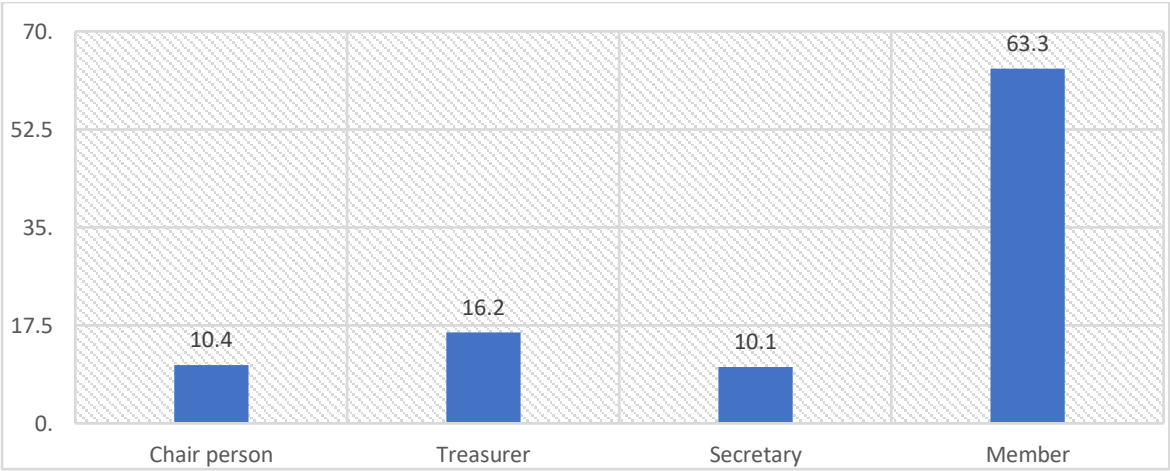

Figure 5.3. 2 – Distribution of the respondents by location

5.3.3 Level of Education

The researcher also wanted to appreciate the highest level of education of the respondents participating in the study. According to the findings, most of the respondents (81.2%) only had high school certificates and only 18.8% of the respondents had bachelor's degrees. However, it was established that many of the respondents had adequate education to understand and respond to the questions raised in the study. To this, the researcher was confident enough that the results obtained in this study are of great quality and increased reliability of data regarding EO and thus, comprehensive.

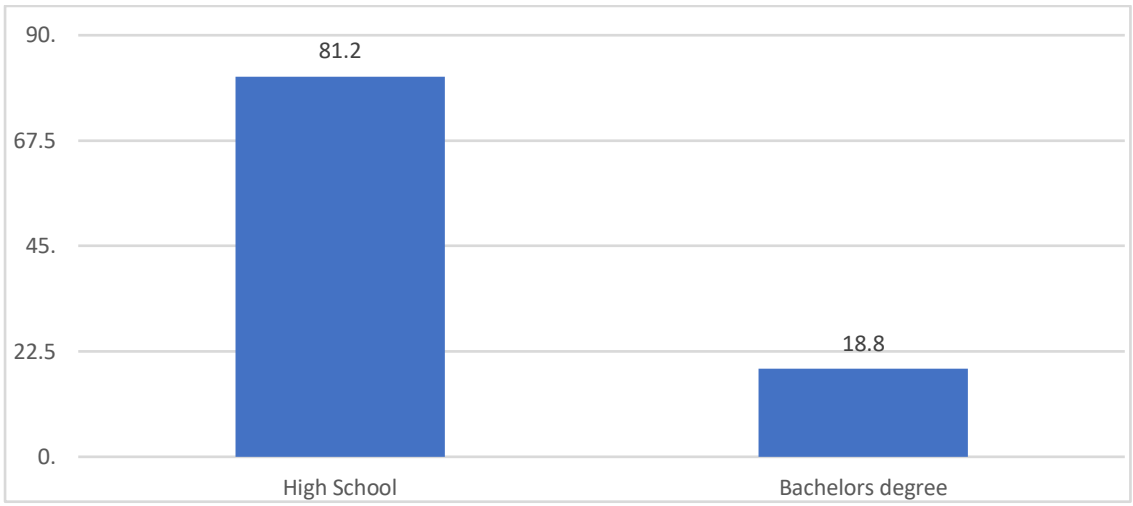

Figure 5.3. 3 -- Distribution of the respondents by education

5.3.4 Years of Experience in the Cooperative

When respondents were asked as to how long they had been in the agricultural cooperative, 10.1% mentioned 3-4 years, 6.2% 5-6 years, 36.4% said 7-10 years and majority 47.4% said they have been in cooperative for more than 10 years. As seen from the results majority of the farmers who participated in the study have more 10 years' experience in the cooperative. This gives confidence to the researcher in terms of experience obtained from the farmers with regard to entrepreneurship dimension and its impact of the business performance.

Table 5.3 1 -- Years of Experience in the Cooperative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3-4 years	31	10.1	10.1	10.1
	5-6 years	19	6.2	6.2	16.2
	7-10 years	112	36.4	36.4	52.6
	10 years and above	146	47.4	47.4	100.0
	Total	308	100.0	100.0	

5.4 Key Determinants of business performance for solar milling cooperatives

The researcher was also interested in knowing the key Determinants of business performance for solar milling cooperatives. Majority of the responses 90% said, innovation, 70% competitive aggressiveness, 64.7% pro-activeness, 60% risk-Taking, 50% competitive energy 40% autonomy, and 20.1% mentioned growth Orientation.

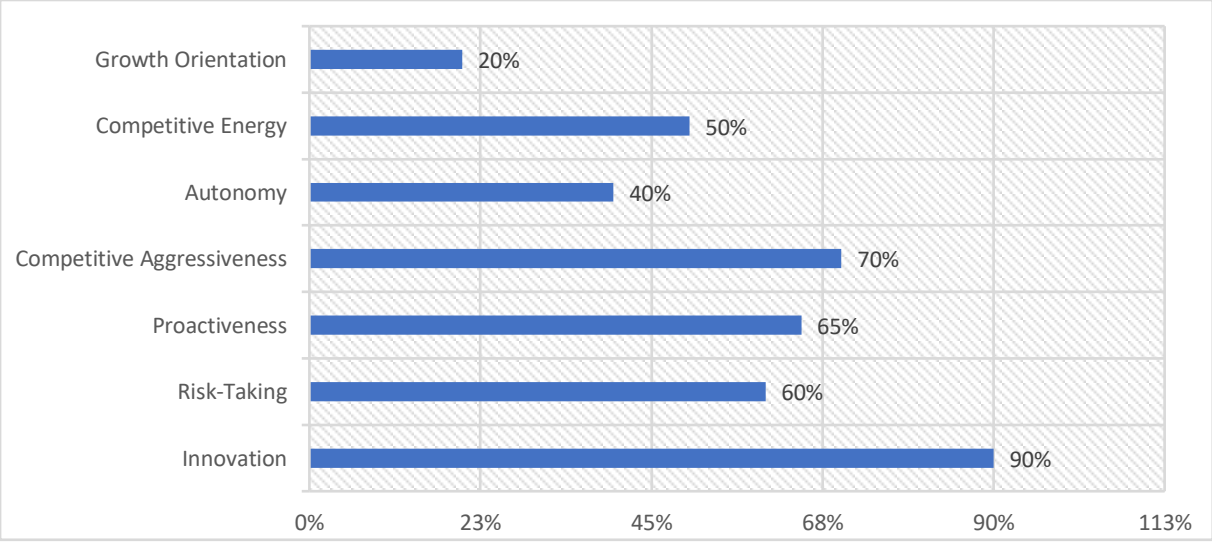

Figure 5.4 1 -- Distribution of the respondents' responses of the key determinants of business performance

5.5 The entrepreneurial orientation (EO) that contribute to the business performance

5.5.1 Dimensions of entrepreneurial orientation

5.5.1.1 Innovation and Pro-activeness

Innovation and pro-activeness dimension of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province. From the results in the table, it shows that Innovation and pro-activeness aspects all had mode of 4, average mean of 4, median of 4 and average standard deviation of 0.70. This shows that respondents agreed that Innovation and pro-activeness dimension of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province.

Table 5.5 1 -- Innovation and pro-activeness dimension versus business performance of solar milling

Innovation		Our cooperative frequently adopts new technologies in solar milling processes.	We often experiment with new business models and strategies in our cooperative.	Our cooperative is known for its creative solutions to milling challenges.	**Pro-activeness**	Our cooperative anticipates and acts on future needs in the solar milling industry.	We take initiative to shape market trends rather than react to them.	Our cooperative is always seeking new opportunities for growth and expansion.
N	Valid	308	308	308	308	308	308	308
	Missing	0	0	0	0	0	0	0
Mean		4.0877	3.5974	3.8442	4.0877	4.0877	4.0877	4.0877
Median		4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000
Mode		4.00	4.00	4.00	4.00	4.00	4.00	4.00
Std. Deviation		0.69581	1.12432	0.84368	0.69581	0.69581	0.69581	0.69581
Range		2.00	4.00	3.00	2.00	2.00	2.00	2.00

5.5.1.2 Competitive and Risk taking

Competitive and Risk-taking dimension of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province. This is evident from the results which shows that competitive and risks taking aspects of entrepreneurial orientation which all had mode of 4, average mean of 4, median of 4 and

average standard deviation of 0.90. This shows that respondents agreed that Competitive and Risk-taking dimension of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province

Table 5.5 2 -- Competitive and Risk-taking versus business performance of solar milling

		Competitive Aggressiveness Risk-taking	Our cooperative adopts an aggressive posture towards competitors to outperform them.	We actively challenge competitors to gain a larger share of the milling market.	Our cooperative is assertive in marketing and promoting our milling services	Our cooperative frequently adopts new technologies in solar milling processes.	We often experiment with new business models and strategies in our cooperative.
N	Valid	308	308	308	308	308	289
	Missing	0	0	0	0	0	19
Mean		4.0877	4.1688	3.6234	3.9870	3.7403	3.6990
Median		4.0000	4.0000	4.0000	4.0000	4.0000	4.0000
Mode		4.00	4.00	4.00	4.00	4.00	3.00
Std. Deviation		0.69581	0.73803	1.25860	0.89141	0.99054	1.13775
Range		2.00	2.00	4.00	3.00	4.00	4.00

5.5.1.3 Autonomy

When asked if autonomy contribute to the business performance of solar milling cooperative enterprises in the Southern Province. The majority of the respondents 44.8% agreed, 24.7 strongly agreed 24.4% were not sure, whilst 6.2 strongly disagreed that autonomy contribute to the business performance of solar milling cooperative enterprises in the Southern Province. This result shows that autonomy contribute to the business performance of solar milling cooperative enterprises in the Southern Province. This is evident from the results which shows that autonomy aspects of freedom and independent in decision making which all had mode of 4, average mean of 4, median of 4 and average standard deviation of 0.90. This shows that respondents agreed that autonomy dimension of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province

Table 5.5 3 -- Autonomy dimension versus business performance of solar milling cooperative enterprises

Autonomy					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	19	6.2	6.2	6.2
	Not sure	75	24.4	24.4	30.5
	Agree	**138**	**44.8**	**44.8**	**75.3**
	Strongly agree	**76**	**24.7**	**24.7**	**100.0**
	Total	308	100.0	100.0	

5.5.1.4 Competitive energy and growth oriented

Competitive energy and growth-oriented dimensions of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province. This is evident from the results which shows that Competitive energy and growth aspects of entrepreneurial orientation which all had mode of 4, average mean of 4, median of 4 and average standard deviation of 0.740. This shows that respondents agreed that competitive energy and growth-oriented dimension of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province.

Table 5.5 4 -- Competitive energy and growth oriented versus business performance of solar milling

		Competitive Energy	Our cooperative has a vigorous approach to competition in the milling industry.	We invest significant energy into staying ahead of milling trends and competitors.	Our cooperative's culture thrives on competitive challenges	**Growth Orientation**	Our cooperative prioritizes growth and scaling up operations.	We set ambitious targets for increasing our cooperative's market presence.	Our cooperative invests in resources and training to support growth
N	Valid	308	308	308	308	308	308	308	308
	Missing	0	0	0	0	0	0	0	0
Mean		3.8409	4.0032	3.8636	4.0877	3.7987	3.6818	4.0877	4.0260
Median		4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000	4.0000
Mode		4.00	4.00	4.00	4.00	3.00	4.00	4.00	4.00
Std. Deviation		0.89005	0.05698	0.73150	0.69581	0.75612	0.74155	0.69581	0.47680
Range		3.00	1.00	3.00	2.00	2.00	3.00	2.00	2.00

5.5.2 The impact of EO on the business performance of solar milling cooperative enterprises

The results shows that EO has an impact on the business performance of the solar milling enterprises. When respondents were asked if at all they agreed or disagreed to the statement that their sales revenues have been rising, the number of customers seeking to grind their maize into flour has been increasing, the cooperative has recorded an increase in market share in milling business, their cooperative is doing commercial milling, The cooperative has capacity to mobilise its own maize grain. It was observed that most of the respondents disagreed that their sales revenue was rising and that their cooperative was doing commercial milling. This is evident from the mode results obtained in the table below which shows mode of 1 and mean of 2 for both aspects. However, it was also observed that most of the respondents agreed that; the number of customers seeking to grind their maize into flour has been increasing, the cooperative has recorded an increase in market share in milling business, the cooperative has capacity to mobilise its own maize grain. Which is evident from the results which shows that all these aspects of business performance had mode of 4, average mean of 4, median of 4 and average standard deviation of 0.67. This shows that respondents agreed that Innovation and

pro-activeness dimension of entrepreneurial orientation contribute to the business performance of solar milling cooperative enterprises in the Southern Province

Table 5.5 5 -- Impact of EO on the business performance of solar milling cooperative enterprises

		Sales revenues have been rising	The number of customers seeking to grind their maize into flour has been increasing	The cooperative has recorded an increase in market share in milling business	Our cooperative is doing Commercial milling	The cooperative has capacity to mobilise its own maize grain	The SMP runs on average a normal period on a business day	Our cooperative consistently meets or exceeds our performance targets.	Our cooperative's performance has improved since adopting solar milling technologies.
N	Valid	308	308	308	308	308	308	308	308
	Missing	0	0	0	0	0	0	0	0
Mean		2.3247	3.8994	4.0649	1.7305	4.1883	4.0877	4.1071	3.9448
Mode		1.00	4.00	4.00	1.00	4.00	4.00	4.00	4.00
Std. Deviation		2.52643	0.58727	0.51271	0.74988	0.59607	0.69581	0.67882	0.68502
Sum		1024.00	1201.00	1252.00	533.00	1290.00	1259.00	1265.00	1215.00

5.6 Relationship between the internal and external business environments and the business performance of solar milling cooperatives in the Southern Province.

5.6.1 Internal business environment and business performance of the cooperative organisation.

There is a significant relationship between internal business environment and business performance of the cooperative organisation. Internal business environment; operation costs of SMP business, lack of qualified workers, business skills/acumen of co-op leaders & Knowledge, there was limited know-how on undertaking repairs on the SMP and SMP cooperative business performance had P-Value from the SPSS output was below 0.01 which the level of significance as indicated in the table below. The coefficient of correlation of 0.482 suggests that there a moderate positive relationship between SMP cooperative internal business

environment and business performance. This suggests that, Internal business environment has a significant influence on business performance of the cooperative organisation. Since the P-Value from the SPSS output is below 0.01 which the level of significance as indicated in the table below.

Table 5.6 1 -- Correlations Internal business environment and business performance of the cooperative enterprise

		Business Performance	Internal business environment
Business Performance	Pearson Correlation	1	.482**
	Sig. (2-tailed)		.000
	N	252	252
Internal business environment	Pearson Correlation	.482**	1
	Sig. (2-tailed)	.000	
	N	308	308

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

5.6.2 External business environment and business performance of the cooperative organisation.

There was a significant relationship between external business environment and business performance of the cooperative organisation. External business environment; Government policies, market accessibility, raw materials and time of operation and SMP cooperative business performance had P-Value from the SPSS output was below 0.05 which the level of significance as indicated in the table below. The coefficient of correlation of -0.042 suggests that there a weak negative relationship between external business environment and business performance. This further, suggests that, External business environment has a significant influence on business performance of the cooperative organisation. Since the P-Value (0.042) from the SPSS output was below 0.05 which the level of significance as indicated in the table below.

Table 5.6 2 -- Correlations of External business environment and business performance of the cooperative enterprise

		Business Performance	External business environment
Business Performance	Pearson Correlation	1	-.042
	Sig. (2-tailed)		.025
	N	252	252
External business environment	Pearson Correlation	-.042	1
	Sig. (2-tailed)	.025	
	N	308	308

5.6.3 Model Summary using the coefficient of determination

The overall coefficient of correlation of 0.947 in the table below from the SPSS results suggests that there was a strong positive relationship between the variables under observation in relation to business performance of the solar milling plants with regard to Internal business environment; operation costs of SMP business, lack of qualified workers, business skills/acumen of co-op leaders & Knowledge, there is limited know-how on undertaking repairs on the SMP. The R-Square (coefficient of determination) of 0.897 suggests that business performance of solar milling plants is influenced 89.7% by the independent variables observed.

The R-Square (coefficient of determination) of 0.897 suggests that organisation business performance is influenced 89.7% by the independent variables which are: Internal and external environment.

There was a significant relationship between internal and external business environment and business performance of the cooperative organization since the P-Value from the SPSS output is below 0.01 which the level of significance as indicated in the table below.

Table 5.6 3 -- Results, Regression Summary Model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.947[a]	.897	.896	.23794

5.7 The effect of EO on the business performance of solar milling cooperative enterprises.

The study results have revealed that that gender, Education, Internal Factors, External factors, EO Dimensions (Autonomy, risk taking, innovation, growth orientation, completeness) have a significant relationship with the business performance of solar milling cooperative enterprises. The results were significant at ($p< 0.05$). This implies that gender, Education, Internal Factors, External factors, EO Dimensions (Autonomy, risk taking, innovation, growth orientation, competitiveness) are directly associated with the business performance of solar milling cooperative enterprises. Correlation analysis revealed that: EO positively correlated with cooperative business performance ($r = 0.65$, $p < 0.01$), on the other hand regression analysis: EO dimensions (autonomy, innovativeness, risk-taking, pro-activeness) significantly predicted cooperative business performance ($R^2 = 0.53$, $F (4, 115) = 24.11$, $p < 0.01$).

Table 5.7 1 -- Relationship between EO and the business performance of solar milling cooperative enterprises

Coefficients							
Table 5.4.12 Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**	
	B	Std. Error	Beta			**Lower Bound**	Upper Bound
(Constant)	1.223	.323		3.784	**.001**	.588	1.857
Gender	.057	.078	.031	.33	.046	-.096	.210
Education	0.22	0.058	.037	.0681	.001	.0483	.532
Internal Factors	0.67	0.082	0.043	0.723	.001	0.078	0.56
EO Dimensions (Autonomy, risk taking, innovation, growth orientation, competitiveness)	.211	.158	.055	1.340	**.018**	-.098	.520
External Factors	-.373	.079	-.209	-4.737	**.001**	-.528	-.219

a. Dependent Variable: **Business Performance of solar milling cooperatives**

5.8 Qualitative responses

The insights from the six participants provide a deeper understanding of the factors influencing entrepreneurial orientation, cooperative performance, and the challenges and opportunities faced by solar milling cooperatives. Their diverse perspectives shed light on how these themes interact to shape the overall performance and sustainability of cooperatives. The responses were grouped into three broad categories for clarity and analysis

5.8.1 Entrepreneurial Orientation Themes

This section explores how participants perceive the key dimensions of entrepreneurial orientation innovation, risk-taking, proactiveness, competitiveness, and adaptability in driving cooperative success. The participants' firsthand experiences highlight both the opportunities and challenges inherent in fostering entrepreneurial spirit within cooperatives.

Participants consistently highlighted the transformative impact of innovation on cooperative performance.

5.8.1.1. Innovation

Participants, the Committee Member (Innovation Leader), *noted that innovation drives the cooperative's success and keeps it competitive, citing the launch of mobile milling services as an example of innovation in action.*

Participants 11, the Treasurer, *noted that innovation was vital for the cooperative's survival, highlighting the importance of regularly refining milling techniques to meet customer demands efficiently*. The Vice Chair, *noted that innovation was at the core of everything the cooperative does, crediting solar-powered machinery for reducing operational costs while enhancing efficiency*. It was also noted that innovation is critical to addressing environmental constraints, affirming that the adoption of advanced technologies ensures long-term sustainability.

5.8.1.2 Risk-Taking

One of the participants, the Chairperson, noted that risk-taking is necessary for growth, emphasizing the cooperative's bold investment in solar milling technology despite its upfront costs.

One of the participants, the committee member, *noted that risk-taking was critical, warning that hesitation can lead to missed opportunities that competitors may quickly exploit*.

One of the participants, the Technical Consultant, *noted that embracing solar technology was key to sustainable competitiveness, advocating for investments in this area*.

5.8.1.3 Proactiveness

One of the participants, the Chairperson, *noted that being proactive has allowed the cooperative to stay ahead of competitors, involving anticipating customer needs and expanding services accordingly.*

Similarly other participants noted that, *aligning milling operations with seasonal crop cycles ensures operational continuity, highlighting the importance of proactiveness and additionally it was also suggested that* proactiveness has secured the cooperative's competitive edge, citing expansion into untapped markets as an example.

5.8.1.4 Competitiveness

> Participants 3, the Chairperson, noted that the, *cooperative's competitiveness was moderate, urging improvements in marketing strategies to enhance competitiveness*.
>
> Participants 2, the Treasurer, *noted that competitiveness was limited by financial constraints, emphasizing the need for increased financial resources, it was also noted that competitiveness was crucial for growth and relevance, pushing for aggressive marketing strategies to enhance competitiveness.*

5.8.1.5 Adaptability

Adaptability was identified as a key trait in navigating challenges and identifying opportunities for diversification.

> **Participant 6: A**lluded that**,** *"Our cooperative's greatest strength lies in adaptability,"* citing their diversification into sorghum and millet milling during maize shortages. However, others noted that the supply inconsistencies pose barriers to adaptability.

5.8.2 Cooperative Performance Themes

Participants provided insights into the cooperative's financial health, operational efficiency, customer satisfaction, and market share. These factors collectively reflect how the internal environment influences performance. Participants reflected on the cooperative's financial outcomes, operational efficiency, customer satisfaction, and market share. This section delves into their views on how these performance metrics are shaped by both internal practices and external influences.

5.8.2.1 Financial Performance

Financial performance was seen as both a measure of growth and a reflection of operational resilience.

Chairperson from one of the cooperatives in southern province observed that while the cooperative has managed to maintain steady financial performance, rising costs of raw materials are creating significant challenges for its overall stability. These pressures highlight the need for creative financial strategies to sustain operations.

> Participant 2, the Vice Chair celebrated the cooperative's robust financial growth, attributing the success to well-planned investments in technology. These investments have not only fueled business expansion but also demonstrated the cooperative's commitment to forward-thinking strategies.
>
> Participant 4; one of the committee member from the cooperative also remarked on the exceptional strides in operational efficiency. They explained that modernization efforts have streamlined processes, minimized waste, and brought the cooperative closer to achieving peak performance.
>
> Treasurer pointed out that despite the progress in improving efficiency, technical expertise gaps continue to pose challenges. Addressing these gaps remains crucial to ensuring the cooperative's operations reach their full potential.

Secretary emphasized the importance of inclusivity and innovation in driving customer satisfaction. They noted that the cooperative's *ability to consistently deliver high-quality products has earned it strong loyalty and positive feedback from customers*.

One of the Technical Consultant from ZCF highlighted the role of advanced technologies and innovative services in shaping the cooperative's market strategy. While the market share has not yet expanded, these efforts have positioned the cooperative to capitalize on future growth opportunities.

5.8.3 Challenges and Opportunities Themes

5.8.3.1 Challenges

This section outlines the hurdles faced by solar milling cooperatives and the potential opportunities that could help them overcome these challenges. Participants highlighted pressing issues like raw material shortages and financial constraints while identifying areas for growth such as diversification and inclusivity.

Participant 1 (Chair Person) cited "*rising operational costs and shortages of raw materials" as the cooperative's biggest hurdles.*

Participant 3 (Committee member) pointed to restrictive government policies as another major constraint.

According to the Chairperson, two of the major issues confronting cooperatives are rising operational costs and raw material shortages. These challenges severely impact the cooperatives' ability to operate efficiently and effectively, ultimately affecting their bottom line. Furthermore, the Policymaker pointed out that restrictive government policies and limited access to funding are significant barriers that cooperatives must navigate. These external factors hinder cooperatives' growth and development, making it essential for policymakers to create a more conducive environment. All in all, Rising operational costs and limited resources were consistently raised as significant barriers.

5.8.3.2 Opportunities

Despite the challenges, participants identified several opportunities that cooperatives could leverage to drive future success;

Participant 1 (Manager) noted that; "*Diversifying into sorghum and millet milling" has strengthened operational resilience and opened new markets*.

Participant 5 (Gender Advocate) advocated for, "*empowering women through targeted training programs" to drive inclusivity and foster innovation.*

The Chairperson highlighted diversification into sorghum and millet milling as a strong opportunity for resilience and growth. By expanding their product offerings, cooperatives can reduce their dependence on a single crop, making them more resilient to market fluctuations. Additionally, the Secretary advocated for empowering women through targeted training programs, emphasizing that "inclusivity fosters innovation." This approach could not only promote gender equality but also tap into the creative potential of women, leading to innovative solutions and business growth.

5.9 Summary of Findings

This section provides a summary of the study findings highlighting key results in line with the objectives of the study in chapter on the impact of entrepreneurial orientation on the business performance of agriculture cooperatives in the Southern province of Zambia. Entrepreneurial orientation dimensions innovation, risk-taking, proactiveness, competitiveness, and adaptability were identified as critical factors driving the growth and resilience of solar milling cooperatives, with creativity, bold investments, and inclusivity playing pivotal roles. The study revealed challenges in financial performance due to rising costs; however, strategic investments improved stability while operational efficiency benefited from modernization despite technical skill gaps. Enhanced customer satisfaction was linked to innovative services and inclusive leadership, yet limited market share expansion called for tailored strategies to address this issue. Persistent barriers such as operation costs, material shortages, restrictive policies, and limited repair expertise correlated with business performance, alongside opportunities for diversification into sorghum and millet milling and empowering women through training programs. The study, involving 308 participants, mostly female highlighted how internal and external business environments significantly impacted performance, with

strong relationships (P-Value < 0.01, R-Square 0.897) emphasizing the influence of both factors. Ultimately, education, entrepreneurial orientation, and strategic environmental engagement were deemed vital for sustainable growth in agriculture cooperatives in Zambia's Southern Province.

CHAPTER 6

DISCUSSION OF THE FINDINGS

6.1 Introduction.

This chapter discusses the findings based on research questions regarding the effect of entrepreneurial orientation on the business performance of agriculture cooperatives in Zambia's Southern Province. It gives a summary of the findings based on the study findings and the objectives and then present conclusions based on both discussion, summary then finally its present recommendations.

6.2 General Demographic Information

This study was aimed at exploring the effects of entrepreneurial orientation (EO) on the business performance of solar milling cooperatives in Southern Province, Zambia. The study employed mixed-methods approach combining survey data from 364 respondents' cooperative members with semi-structured questionnaires and interview guide. The analysis of results involved 308 respondents, with the majority being female at 70.5%, while 25.3% were male and 4.2% chose not to disclose their gender. The research focused on cooperative membership in communities and found that it was predominantly female-oriented. The age distribution of respondents showed that most were between 35-45 years old, followed by 25-35 years old, with few respondents under 25 or above 55 years old. The study aligns with previous research that younger individuals are less likely to participate in cooperative and farming activities (Anderson, Eshima, 2013). The majority of respondents were from districts that benefited from the solar milling plants in Southern province.

In terms of positions within the cooperative, most respondents were regular members, followed by treasurers, chairpersons, and secretaries. The educational background of respondents varied, with the majority having high school certificates and a small percentage having bachelor's degrees. This result reflects what was on the ground in that most members who join cooperative are members of the community with less opportunities for other jobs due to education capacity challenges (FINSOPE, 2019).

When asked about their experience in the cooperative, most respondents had been members for more than 10 years, indicating a high level of experience. This experience was seen as

beneficial in understanding entrepreneurship dimensions and their impact on business performance. Overall, the study found that the respondents had a good level of education and experience, providing reliable and comprehensive results on entrepreneurship and cooperative business performance. The cooperative often experiments with new business models and strategies, with 51% of respondents mentioning this and showing agreement.

6.3 Determinants of Business Performance for Solar Milling Cooperatives

6.3.1 Key Determinants of Business Performance

The performance of solar milling cooperatives is influenced by several key determinants, including innovation, risk-taking, proactiveness, competitive aggressiveness, autonomy, competitive energy, and growth orientation. These dimensions collectively reflect the entrepreneurial orientation (EO) framework, which has been consistently identified as a driver of business success in cooperative enterprises. Mason et al. (2015) pointed out that the primary constructs of EO-innovativeness, proactiveness, and risk-taking—serve as critical indicators of business performance. Additionally, researchers such as Lumpkin and Dess (1996), Hair et al. (2014), and Fadda (2018) have emphasized the importance of competitive aggressiveness and autonomy as supplementary dimensions that expand EO's scope in understanding firm dynamics. Thus, EO is conceptualized as encompassing five critical dimensions: innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy (Lumpkin and Dess, 1996; Dess and Lumpkin, 2005). These constructs are particularly relevant for solar milling cooperatives, where adaptability, creativity, and strategic behavior are vital for sustaining competitiveness and achieving growth.

Innovation is a cornerstone of EO, enabling cooperatives to develop new products, services, or processes that enhance operational efficiency and market competitiveness. Proactiveness, on the other hand, involves anticipatory actions that allow cooperatives to seize emerging opportunities and preempt competition. Risk-taking represents the cooperative's willingness to invest in uncertain ventures, reflecting an appetite for calculated risks that can lead to significant rewards. Competitive aggressiveness entails adopting a combative stance to outperform rivals, while autonomy emphasizes the importance of independent decision-making within the cooperative to foster creative problem-solving and efficiency. The study's findings contribute to the body of knowledge on Entrepreneurship Theory (ET) and Dynamic

Capabilities Theory (DCT) by highlighting the significance of entrepreneurial orientation (EO) dimensions and dynamic capabilities in enhancing cooperative performance. Specifically, the study validates the applicability of ET and DCT in the context of solar milling cooperatives, demonstrates the contextual influence of EO dimensions on cooperative performance, and illustrates the development and deployment of dynamic capabilities in achieving sustainable competitive advantage.

6.4 Dimensions of Entrepreneurial Orientation (EO) That Contribute to Business Performance

6.4.1 EO Dimensions and Their Contributions

The dimensions of EO innovation, proactiveness, competitive aggressiveness, risk-taking, and autonomy have varying impacts on the business performance of solar milling cooperatives. Most respondents in the study agreed that these dimensions are critical drivers of success. Felício et al. (2012) and Mason et al. (2015) underscored that competitive energy enables cooperatives to respond vigorously to industry challenges, reflecting a combative and strategic effort to maintain relevance and growth. Additionally, Alexe and Alexe (2018) identified autonomy as a key factor, asserting that it facilitates the establishment of independent work units that generate innovative solutions to operational challenges.

Growth orientation, as an extension of EO, also plays a significant role. It reflects the cooperative's commitment to pursuing strategic opportunities that enhance organizational scale, capacity, and market reach. Anderson and Eshima (2013), Covin and Slevin (1989), and Wiklund and Shepherd (2005) further elaborated on how entrepreneurial behaviors, including innovation and proactiveness, contribute to firm success.

Interestingly, while EO typically has positive implications for business performance, its impact may vary depending on the specific dimension. For instance, Venter (2014) found that innovativeness and proactiveness significantly influence business success in South African SMEs, whereas autonomy and competitive aggressiveness have less pronounced effects. Similarly, Duru, Ehidiamhen, and Chijioke (2012) noted that risk-taking and autonomy might be less significant for SMEs in specific contexts, such as the Nigerian market.

In this study on solar milling cooperatives, respondents highlighted increasing customer engagement, expanding market share, and enhanced capacity to mobilize raw materials as key performance indicators influenced by EO dimensions. Despite some concerns regarding revenue growth and commercial milling activities, the study demonstrates that the strategic adoption of EO dimensions can yield significant performance improvements. This study contributes to Entrepreneurship Theory (ET) by providing contextual understanding of how entrepreneurial orientation (EO) dimensions influence cooperative performance, validating ET in a new setting, and offering a nuanced understanding of EO dimensions. Additionally, the study contributes to Dynamic Capabilities Theory (DCT) by extending it to cooperative settings, illustrating dynamic capabilities in action, and contextualizing their development and deployment. Overall, the study enriches both ET and DCT by highlighting the interplay between entrepreneurial orientation, dynamic capabilities, and cooperative performance in a specific context, thereby advancing understanding of how cooperatives can achieve sustainable competitive advantage

6.5 Relationship between Internal and External Business Environments and Business Performance

6.5.1 Internal and External Business Environment Dynamics

The interplay between internal and external business environments profoundly affects the performance of solar milling cooperatives. Internally, factors such as operational costs, leadership skills, worker qualifications, and repair knowledge exhibit a strong positive correlation with business performance (P-value < 0.01, coefficient: 0.482). Externally, influences such as government policies, market access, raw material availability, and operation times pose challenges, demonstrating a negative correlation with performance (P-value < 0.05, coefficient: -0.042). The combined effect of these internal and external factors is substantial, with a strong positive relationship observed between the overall business environment and performance outcomes (coefficient: 0.947). This relationship accounts for approximately 89.7% of business performance variations (R-square: 0.897), emphasizing the critical role of environmental factors in shaping success.

These findings align with earlier research. Biaga, Sibiu, and Balcescu (2016) highlighted the dynamic and complex nature of external environments, which compel organizations to adapt their strategies and operations. Similarly, Okundi (2011) demonstrated that internal factors,

such as operational efficiency and employee competency, have a direct and positive impact on business outcomes.

The current study also explored the relationship between EO dimensions (autonomy, risk-taking, innovation, growth orientation, and competitiveness) and business performance. It found that EO significantly enhances cooperative performance by fostering strategic behaviors and leveraging resources to address internal and external challenges. These results are consistent with the work of Anderson and Eshima (2013), Covin and Slevin (1989), and Wiklund and Shepherd (2005**)**, who collectively emphasized the importance of EO in navigating environmental complexities. Thus, by addressing both internal and external environmental factors and fostering a culture of entrepreneurial orientation, solar milling cooperatives can improve their competitiveness, adaptability, and overall sustainability. Practical strategies may include investing in employee training, enhancing market access, and developing innovative approaches to overcome operational and environmental constraints. This integrated approach offers a roadmap for cooperative enterprises aiming to achieve long-term success and resilience.

The relationships between environmental factors and business performance are theoretically grounded in Dynamic Capabilities Theory (DCT) and Entrepreneurship Theory (ET). DCT explains how cooperatives can adapt to internal and external pressures by building dynamic capabilities, while ET highlights the role of entrepreneurial traits in navigating environmental challenges. The study found that internal and external factors account for approximately 89.7% of performance variations, aligning with prior research. To improve adaptability and competitiveness, solar milling cooperatives can implement practical strategies such as training programs, market development, and policy advocacy. The integration of DCT and ET provides a comprehensive framework for understanding the relationship between environmental factors and business performance, offering actionable insights for enhancing cooperative sustainability.

6.6 Limitations of Study

A key limitation of this study was that it did not investigate the potential mediating role of organisational learning in the relationship between entrepreneurial orientation and business performance. Given that organisational learning could enhance a firm's ability to leverage entrepreneurial initiatives effectively, future research could explore this mediating effect to

provide a more nuanced understanding of how EO translates into improved business performance.

Second limitation observed in this study was that it primarily examined the effect of entrepreneurial orientation on business performance within the agricultural sector, without extending the analysis to other industries such as manufacturing or the service sectors. Given that different industries may exhibit varying dynamics in how entrepreneurial orientation influences performance, future research could explore these sectors to provide a more comprehensive understanding of this relationship.

Third limitation was that it was a cross sectional study designed, which captures the impact entrepreneurial orientation on cooperative business performance at a specific point in time. This approach does not allow for an assessment of the sustainability and long-time effects of EO on business performance. Future research could adopt a longitudinal design to track these effects over time, offering deeper insights into how entrepreneurial orientation contributes to sustained business success.

6.7 Summary

This chapter provides an in-depth discussion of the results presented in Chapter Four, exploring the implications and significance of the findings in the context of solar milling agriculture cooperatives in Zambia's Southern Province. The chapter delved into the relationships between entrepreneurial orientation, internal and external factors, and cooperative business performance, examining the practical implications of these findings for cooperative managers, policymakers, and stakeholders. The next chapter draws the conclusions and provide recommendations for policymakers, practitioners, and future research, focusing on enhancing entrepreneurial orientation, addressing challenges, and promoting a favorable business environment to improve the business performance of agriculture cooperatives in the region.

CHAPTER 7

CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

This study investigated the effects of Entrepreneurial Orientation (EO) on the business performance of solar milling cooperatives in the Southern Province of Zambia. Drawing from the study's objectives, the following conclusions were made. The study concluded that EO dimensions, including innovation, pro-activeness, risk-taking, autonomy, competitive energy, and growth orientation, have a significant positive impact on the business performance of solar milling cooperatives. These dimensions enhance adaptability, competitiveness, and strategic decision-making, contributing to improved performance outcomes.

7.1.1 Conclusions for Specific Objectives 1: Relationship of Key Determinants of Business Performance

Key determinants such as innovation, competitive aggressiveness, autonomy, and growth orientation were strongly linked to cooperative performance. Internally, factors like operational costs, leadership skills, and repair knowledge positively correlated with performance. Externally, challenges such as market access, government policies, and raw material supply were found to hinder growth. It is therefore concluded that addressing these determinants holistically can significantly improve cooperative outcomes.

7.1.2 Conclusions for Specific Objectives 2: Relationship of EO Dimensions to Business Performance

The study confirmed that EO dimensions (e.g., innovation, pro-activeness, and risk-taking) are vital to cooperative success. Additionally, dimensions like autonomy and competitive aggressiveness enhance strategic actions. The integration of these EO dimensions enables cooperatives to seize market opportunities and outperform competitors. However, the impact of these dimensions varies depending on the organizational and environmental context.

7.1.3 Conclusions for Specific Objectives 3: Relationship between Internal and External Environments and Business Performance

The internal business environment (e.g., operational efficiency and skills) and external environment (e.g., policy frameworks and market dynamics) collectively influence cooperative performance. A strong, positive relationship was observed between environmental factors and performance. The findings emphasize that cooperatives must adopt a balanced approach to managing internal efficiencies while navigating external challenges.

7.2 Research Contributions

7.2.1 Theoretical Contribution

This study contributes to the academic discourse by integrating Dynamic Capabilities Theory (DCT) and Entrepreneurship Theory (ET) into the EO framework. Regarding the dynamic Capabilities Theory (DCT), the findings highlight the importance of adaptability, resource flexibility, and innovation in achieving competitive performance for solar milling cooperatives. On the other hand the Entrepreneurship Theory (ET) and through emphasis on entrepreneurial traits such as opportunity recognition, proactiveness, and risk-taking, the study enriches the understanding of how EO influences cooperative performance. The integration of ET and DCT demonstrates the synergistic relationship between adaptability and entrepreneurial behavior, providing a comprehensive perspective on organizational success.

7.2.2 Practical Contribution

- The practical implications of this study are significant for cooperative management, policymakers, and entrepreneurs:
- Management Strategies: Cooperative managers could enhance performance by fostering a culture of innovation, autonomy, and proactiveness. Encouraging independent decision-making and risk-taking within teams could lead to more innovative solutions.
- Policy Recommendations: Policymakers should address external barriers such as limited market access, restrictive government policies, and raw material shortages.

Supportive frameworks could empower cooperatives to thrive in dynamic environments.

- Capacity Building: Providing training in entrepreneurial skills (e.g., leadership, innovation, and repair/maintenance knowledge) can enhance the competencies of cooperative members, leading to better resource utilization and market positioning.

7.3 Recommendations

Based on the findings of this study, the following practical recommendations are proposed to enhance the performance of solar milling cooperatives in Southern Province, Zambia:

- Encourage cooperative managers and members to actively pursue innovative ideas, such as new milling techniques or value-added products (e.g., milling fortified maize meal).
- Cooperatives need to develop strategic plans to anticipate and respond to market trends. For example, exploring opportunities for partnerships with local businesses or expanding services to reach underserved markets.
- Create an enabling environment that supports calculated risks. Cooperatives should evaluate and invest in new ventures, such as introducing solar-powered machinery upgrades or diversifying into grain storage and supply chains.
- Organize capacity-building programs to enhance the skills of cooperative members in leadership, technical repair knowledge, and business management. This would improve operational efficiency and reduce costs associated with machinery breakdowns.
- Conduct internal audits to identify inefficiencies in resource utilization and implement strategies to streamline operations and reduce wastage among cooperatives.
- Develop strong leadership programs to equip cooperative committees with skills in decision-making, problem-solving, and financial management.This should factor in change of leadership and sustainable continuity elements.
- Cooperatives should actively engage with policymakers to advocate for policies that promote market accessibility, subsidized solar equipment, and favorable taxation for agricultural cooperatives.
- Build partnerships with local and regional stakeholders to improve access to markets for milled products. This could be achieved through joint ventures, collective

bargaining, and branding initiatives such as one brand ZCF “Coop Milling” to differentiate cooperative products.

- Establish supply networks with local farmers to ensure steady availability of raw materials. Agreements with suppliers for consistent maize supply could enhance productivity.
- There was need to develop mechanisms to adapt and reconfigure resources in response to external market dynamics**.** This includes investing in solar technology upgrades and increasing the cooperative's capacity for innovation and learning. Operationalization of Rural Enterprise Hub (REH) model, which was original concept embedded in the project.
- Encourage greater participation of women and other marginalized groups in cooperative leadership and decision-making roles. Capacity-building programs tailored to these groups could help enhance their entrepreneurial skills.
- Implement monitoring and evaluation frameworks to track cooperative performance against key performance indicators, such as market share, customer engagement, and financial sustainability.

7.4 Recommendations for Future Studies

1. Investigate the mediating role of organizational learning in the EO-business performance relationship. Given that organisational learning could enhance a firm’s ability to leverage entrepreneurial initiatives effectively, future research could explore this mediating effect to provide a more nuanced understanding of how EO translates into improved business performance
2. Examine the impact of EO on cooperative business performance in other sectors (e.g., manufacturing, services).As a matter of fact, different industries may exhibit varying dynamics in how entrepreneurial orientation influences performance, future research could explore these sectors to provide a more comprehensive understanding of this relationship.
3. Conduct a longitudinal study to assess the sustainability of EO's impact on cooperative business performance. Future research could adopt a longitudinal design to track these effects over time, offering deeper insights into how entrepreneurial orientation contributes to sustained business success.

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APPENDICES

APPENDIX I: PROJECTED TIMELINE AND BUDGET

PROJECTED TIMELINE

	2024					
	MAY-JUNE	**JUL**	**AUG**	**SEPT**	**SEPT-OCT**	**OCT**
Proposal writing						
Proposal submission and Clearance						
Data collection						
Data analysis and report writing						
Submission of report						
Defense of thesis						

Project Budget

Serial No.	Description	Frequency	Unit Cost	Sub Total
1.	Stationaries (questionnaires)	300	10	K3,000
2.	Transport	4	K00	K1600
3.	Talk time		K400	K400
4	Printing report	10	300	K3000
5.	Lunch report	10	K80	K800
6	Total			K8,800

APPENDIX II: INTRODUCTORY LETTER

THE UNIVERSITY OF ZAMBIA

GRADUATE SCHOOL OF BUSINESS

Title*:* Exploring the effect of entrepreneurial orientation on performance of agriculture cooperatives in Southern province of Zambia

. **Dear Respondent,**

I am Godfrey M. Munyoro a student at the University of Zambia studying Master of Science Entrepreneurship and Innovation Management. I am conducting a study aimed at exploring the effect of entrepreneurial orientation on performance of agriculture cooperatives in Southern province of Zambia. As such you have been identified as a key informant to participate in this research. You are therefore, requested to provide answers to questions contained in this questionnaire. However, be assured that the findings of this research are purely for academic purposes. Thus, your response will be treated with the greatest level of confidentiality.

The research findings will be of benefit to policy makers and will help our Government since Government auditing is a cornerstone of good public sector governance. Results obtained on the on effectiveness of audit committee in the government ministries will help stake holders to assess the extent to which the laws, policies and procedures that promote EO among cooperative members and how they will be implemented to create awareness on EO. The implementation of strategies from this stud will bring about laws and policies procedures that could improve effectiveness of cooperatives in running not just solar milling plants but all projects.

Thank you in anticipation

Signature: ……....

Godfrey M. Munyoro

+260 977607570

APPENDIX III: PARTICIPANT INFORMATION SHEET

Exploring the effect of entrepreneurial orientation on performance of agriculture cooperatives in Southern province of Zambia

[Informed Consent Form for; members of the cooperative and management committee in the cooperatives and Federation representative. It is meant for participants who have insight about cooperative performance, operations and roles on how they can bring about effectiveness of solar milling plants operation and improved performance.

Name of Principle Investigator: Godfrey M. Munyoro

Name of Organization: University of Zambia Graduate School of Business

Name of Sponsor: Self

Introduction

I am Godfrey Munyoro a student at the University of Zambia studying Master of Science Entrepreneurship and Innovation Management. I am conducting a study aimed at exploring the effect of entrepreneurial orientation on performance of agriculture cooperatives in Southern province of Zambia. The results obtained from this stud will be of great benefit in such a way that it will ensure the results provide scholars, stakeholders and Government a different perception of how to approach rural development interventions and help to further create knowledge and clear webs surrounding the EO phenomena. This would pave way for the best areas of resource placement to achieve value for money, which is desired by all. Its findings will contribute to the existing body of knowledge on solar milling business and encourage other researcher to undertake further researcher in this area.

Type of Research Intervention and Duration

This research will involve your participation by answering the questions in the questionnaire (or structured interview schedule) and it should take about 15 to205 minutes to complete.

Participant Selection

You are being invited to take part in this research because we feel you have more understanding and insight on how agriculture cooperatives can effectively use EO dimension, business development, information acquisition and utilization, internal and external environment to perform agriculture industry. Thus, your knowledge and contribution will help with coming up

with comprehensive report with significant findings on how best ZCF can enhance the performance of not just the solar milling plants but also itself.

Transparency

The researcher will take time to provide and explain to you the purposes of the study so as to help you make informed decision before agreeing or withdrawing from taking part in this study which aims to establish factors that contribute to the effectiveness of entrepreneurial orientation on performance of agriculture cooperatives in Southern province of Zambia. The information sheet contains the purpose and significance of study not just to the researcher but also to the community. Thus, the researcher will try to be transparent as possible without withholding any vital information to participant.

Voluntary Participation / Coercion

Your participation in this research is entirely voluntary. No participant will be forced to take part in this study. It is up to you to choose as to whether to go ahead and participate or not. If they choose to not to participate all the services, you receive at this Centre will continue and nothing will change. The choice that you make will have no bearing on their job or on any work-related evaluations or reports. You may change your mind later and stop participating even if you agreed earlier. As a participant you are free to skip questions that you may seem personal or otherwise and to withdraw from the study anytime without penalty.

Risk

There are no foreseeable risks associated with this study or whatsoever.

Benefits

There is no immediate benefit for your participation in the survey, however, the finding obtained from this study will provide scholars, stakeholders and Government a different perception of how to approach rural development interventions and help to further create knowledge and clear webs surrounding the EO phenomena. This would pave way for the best areas of resource placement to achieve value for money, which is desired by all. The implementation of recommendation strategies from this study will bring about laws and policies that promote entrepreneurship knowledge and training among cooperatives members to improve effectiveness and the performance the cooperatives.

Compensation

There is no compensation for participating in this study whatsoever.

Confidentiality

Your responses will be given maximum confidentiality. Any information which may identify you will be kept strictly confidential and your responses will in no way lead to any adverse effect on or negative feedback from the school or the general public because of the response you may provide. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except [name who will have access to the information, such as the Supervisor, and Research ethics and research committee.

Questions /Clarification

The researcher conducting this study is a student at the University of Zambia studying Master of Science Entrepreneurship and Innovation Management in the Graduate School of Business. In case you have questions or clarifications. You may contact the individuals listed below.

This proposal or protocol has been reviewed and approved by HSSREC which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find out more about the IRB, contact:

The Chairperson,
Humanities and Social Sciences, Research Ethics Committee,
University of Zambia
P O Box 32379
LUSAKA

The Director,
Directorate of Research and Graduate Studies
University of Zambia
P O Box 32379
LUSAKA

Principle Investigator Details

Godfrey M. Munyoro
+260 977607570
Address: Lusaka, Zambia

CERTIFICATE OF INFORMED CONSENT

Title: Exploring the effect of entrepreneurial orientation on performance of agriculture cooperatives in southern province of Zambia.

I have been invited to participate in research study titled: *Exploring the effect of entrepreneurial orientation on performance of agriculture cooperatives in Southern province of Zambia.* I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Print Name of Participant_____

Signature of Participant _____

Date _____

Day/month/year

If illiterate

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness_____ Thumb print of participant

Signature of witness _____

Date _____

Day/month/year

Investigator Details

I hereby confirm that I have personally explained to the above respondent the proposed research, procedures, and confidentiality of his/her personal information

_____

Signature

Godfrey M. Munyoro

Contact details: +260 977607570

APPENDIX IV: QUESTIONNAIRE

Questionnaire – SMP Cooperatives Southern Province of Zambia

ID	

MASTER OF SCIENCE IN ENTREPRENEURSHIP AND INNOVATION MANAGEMENT

EXPLORING THE EFFECT OF ENTREPRENUERIAL ORIENTATION ON PERFORMANCE OF AGRICULTURE COOPERATIVES: A CASE STUDY OF SOLAR MILLING PLANT COOPERATIVES IN SOUTHERN PROVINCE OF ZAMBIA.

DEMOGRAPHIC INFORMATION

1. Name of Cooperative: _____
2. Location of Cooperative (District): _____
3. Age of Cooperative: _____
4. Gender of the respondents:_____
    - Male [ ]
    - Female [ ]
    - Prefer not to say [ ]
5. Position of Respondent: _____
6. Educational Background:

- High School [ ]
- Bachelor's Degree [ ]
- Master's Degree [ ]
- Doctorate Degree [ ]

7. What is the total number of members of the cooperative? _____
8. Which year was cooperative established? _____

Dimensions of Entrepreneurial Orientation for cooperative and members of the cooperative management committee and Federation representative

To what extent do you agree and disagree with the following statement (***Tick***)						
Since the installation of SMP:		**Strongly agree**	**Agree**	**Not sure**	**Disagree**	**Strongly Disagree**
	Innovativeness					
	Our cooperative frequently adopts new technologies in solar milling processes.					
	We often experiment with new business models and strategies in our cooperative.					
	Our cooperative is known for its creative solutions to milling challenges.					
	Pro-activeness					
	Our cooperative anticipates and acts on future needs in the solar milling industry.					

	We take initiative to shape market trends rather than react to them.					
	Our cooperative is always seeking new opportunities for growth and expansion.					
	Competitive Aggressiveness					
	Our cooperative adopts an aggressive posture towards competitors to outperform them.					
	We actively challenge competitors to gain a larger share of the milling market.					
	Our cooperative is assertive in marketing and promoting our milling services					
	Autonomy					
	Individual teams within our cooperative have the freedom to develop their own ideas.					
	Our cooperative encourages independent action and decision-making.					

	Competitive Energy					
	Our cooperative has a vigorous approach to competition in the milling industry.					
	We invest significant energy into staying ahead of milling trends and competitors.					
	Our cooperative's culture thrives on competitive challenges					
	Growth Orientation					
	Our cooperative prioritizes growth and scaling up operations.					
	We set ambitious targets for increasing our cooperative's market presence.					
	Our cooperative invests in resources and training to support growth					

1. Business performance for solar milling cooperatives in Southern province

Indicate your opinion on the determinants of solar milling plant **(SMP)** cooperatives performance (***Tick***)						
Since the installation of SMP:		**Strongly agree**	**Agree**	**Not sure**	**Disagree**	**Strongly Disagree**
	Sales revenues have been rising					
	The number of customers seeking to grind their maize into flour has been increasing					
	The cooperative has recorded an increase in market share in milling business					
	The cooperative has capacity to mobilise its own maize grain					
	The cooperative is doing commercial milling					
	The SMP runs on average a normal period on a business day					
	Our cooperative consistently meets or exceeds our performance targets.					
	We measure success not just in financial terms, but also in community impact.					
	Our cooperative's performance has improved since adopting solar milling technologies.					

2. Entrepreneurial Orientation dimensions contributing to firm performance in solar

Indicate your opinion on the determinants of entrepreneurial orientation (EO) dimensions contributing to firm performance in SMP cooperatives performance (***Tick***)				
Since the installation of SMP rate following dimensions of EO:		**High**	**Medium**	**Low**
	The level of innovativeness			
	The level of pro-activeness			
	The level of risk-taking			

3. Internal business environment and performance of solar milling cooperatives in southern province

Indicate your opinion on the Internal business environment dimensions contributing to firm performance in SMP cooperatives performance (***Tick***)						
		Strongly agree	**Agree**	**Not sure**	**Disagree**	**Strongly disagree**
	The operation costs of SMP business are rising					
	The SMP business is affected negatively by lack of qualified workers					
	The SMP business is affected by lack of business skills/acumen of co-op leaders & managers					

	There is limited know-how on undertaking repairs on the SMP					
	There is limited know-how on undertaking maintenance on the SMP					

4.

Indicate your opinion on the external business environment dimensions contributing to firm performance in SMP cooperatives performance (***Tick***)						
Indicate your opinion **on the external business environment dimensions**		**Strongly agree**	**Agree**	**Not sure**	**Disagree**	**Strongly disagree**
	Competition from other millers is increasing					
	Some government policies disfavour the operations of SMP					
	Access to key markets is a challenge (i.e., schools, clinics, hospitals, local markets, individual consumers)					
	Access to supply of raw material is a challenge (supply of maize grain)					
	During low sunlight days the operations of SMP business are limited					

4. External business environment and performance of solar milling cooperatives in Southern Province

ADDITIONAL COMMENTS

1. Are there any other factors that influence your cooperative's performance? _____

2. Are there any challenges that your cooperative faces in terms of entrepreneurial orientation? _____

3. Are there any opportunities that your cooperative can leverage to improve its entrepreneurial orientation? _____

End - Thank you

APPENDIX V: INTERVIEW GUIDE FOR KEY INFORMANTS

SECTION A: DEMOGRAPHIC INFORMATION

1) Name of Cooperative: _____
2) Location of Cooperative: _____
3) Number of Members: _____
4) Age of Cooperative: _____
5) Position of Respondent: _____

ENTREPRENEURIAL ORIENTATION

1) How would you rate your cooperative's willingness to take risks?
2) How would you rate your cooperative's ability to innovate?
3) How would you rate your cooperative's pro-activeness?
4) How would you rate your cooperative's competitiveness?
5) How would you rate your cooperative's ability to adapt to change?

PERFORMANCE OF THE CORPERATIVES

1) How would you rate your cooperative's financial performance over the past year?

2) How would you rate your cooperative's operational efficiency over the past year?

3) How would you rate your cooperative's customer satisfaction over the past year?

4) How would you rate your cooperative's market share over the past year?

5) How would you rate your cooperative's overall performance over the past year?

ENTREPRENEURIAL ORIENTATION AND PERFORMANCE

1) How does your cooperative's entrepreneurial orientation influence its financial performance?

2) How does your cooperative's entrepreneurial orientation influence its operational efficiency?

3) How does your cooperative's entrepreneurial orientation influence its customer satisfaction?

4) How does your cooperative's entrepreneurial orientation influence its market share?

5) How does your cooperative's entrepreneurial orientation influence its overall performance?

ADDITIONAL INFORMATION

1) Are there any other factors that influence your cooperative's performance?

2) Are there any challenges that your cooperative faces in terms of entrepreneurial orientation?

3) Are there any opportunities that your cooperative can leverage to improve its entrepreneurial orientation?

APPENDIX VI: DIMENSIONS OF ENTREPRENEURIAL ORIENTATION

EO Dimensions	Innovation	Risk-Taking	Pro-activeness	Competitive Aggressiveness	Autonomy	Competitive Energy	Growth Orientation
1	Miller(1983)	Miller(1983)	Miller(1983)				
2	Lumpkin and Dess (1996),(2001)	Lumpkin and Dess (1996)	Lumpkin and Dess (1996)	Lumpkin and Dess (1996)	Lumpkin and Dess (1996)		Lumpkin and Dess (2001)
3	Namanand Slevin(1993)	Namanand Slevin(1993)	Namanand Slevin(1993)				
4	Lee and Peterson (2001)	Lee and Peterson (2001)	Lee and Peterson (2001)	Lee and Peterson (2001)	Lee and Peterson (2001)		
5	Swierczek and Ha (2003)	Swierczek and Ha (2003)	Swierczek and Ha (2003)				
6	Richard et al. (2007)	Richard et al. (2007)					
7		Kuivalainen et al. (2007)	Kuivalainen et al. (2007)	Kuivalainen et al. (2007)			
8	Hughes and Morgan (2007)	Hughes and Morgan (2007)	Hughes and Morgan (2007)				
9	Li et al. (2008)	Li et al. (2008)	Li et al. (2008)				
10	Andersen (2010)	Andersen (2010)	Andersen (2010)				
11			Casillas et al. (2010)	Casillas et al. (2010)			
12	Felicio, et al. (2012)	Felicio, et al. (2012)	Felicio, et al. (2012)		Felicio, et al. (2012)	Felicio, et al. (2012)	
13	Kraus (2013)	Kraus (2013)	Kraus (2013)				
14	Boso et al. (2013	Boso et al. (2013	Boso et al. (2013	Boso et al. (2013			
15		Koe (2013)	Koe (2013)	Koe (2013)			
16	Kreiser et al. (2013)	Kreiser et al. (2013)	Kreiser et al. (2013)				
17	Dai et al. (2014)	Dai et al. (2014)	Dai et al. (2014)				

18	Kollmann and Stockmann (2014)	Kollmann and Stockmann (2014)	Kollmann and Stockmann (2014)				
	Lechner and Gudmundson (2014)	Lechner and Gudmundson (2014)	Lechner and Gudmundsoon (2014)	Lechner and Gudmundsoon (2014)			
19	Kozubikova et al. (2015)		Kozubikova et al. (2015)	Kozubikova et al. (2015)			
20	Mason et al. (2015)	Mason et al. (2015)	Mason et al. (2015)	Mason et al. (2015)	Mason et al. (2015)	Mason et al. (2015)	
21			Farja et al. (2016)				
22		Gunawan and Duysters (2016)	Gunawan and Duysters (2016)				
23		Gunawan and Duysters (2016)	Gunawan and Duysters (2016)				
24	Gupta et al. (2016)	Gupta et al. (2016)	Gupta et al. (2016)				
25	Kozubik'ova and Zoubkova' (2016)			Kozubik'ova and Zoubkova' (2016)			
26	Shazad et al. (2016)	Shazad et al. (2016)	Shazad et al. (2016)				
27	Mthanti and Ojah (2017)	Mthanti and Ojah (2017)	Mthanti and Ojah (2017)				
28	Fadda (2018)	Fadda (2018)	Fadda (2018)	Fadda (2018)	Fadda (2018)		
29	Covin & Slevin, (1991), (1998) (2014)	Covin & Slevin, (1991), (1998) (2014)	Covin & Slevin, (1991), (1998) (2014)				Covin & Slevin, (1991),(2014)
30	Wiklund & Shepherd, (2005)	Wiklund & Shepherd, (2005)	Wiklund & Shepherd, (2005)	Wiklund & Shepherd, (2005)	Wiklund & Shepherd, (2005)		Wiklund & Shepherd, (2005)
Frequency	**25**	**27**	**29**	**12**	**6**	**2**	**3**

End - Thank you